CONTRIBUTIONS FROM THE UNIVERSITY
OF MICHIGAN HERBARIUM, NO. 7

STUDIES OF AMERICAN SPERMATOPHYTES—II

BY

CYRUS LONGWORTH LUNDELL

ANN ARBOR
UNIVERSITY OF MICHIGAN PRESS
MAY, 1942

CONTRIBUTIONS FROM THE UNIVERSITY
OF MICHIGAN HERBARIUM, NO. 7

STUDIES OF AMERICAN SPERMATOPHYTES—II

BY

CYRUS LONGWORTH LUNDELL

ANN ARBOR
UNIVERSITY OF MICHIGAN PRESS
MAY, 1942

STUDIES OF AMERICAN SPERMATOPHYTES—II

PLANTS OF MEXICO, BRITISH HONDURAS, GUATEMALA, COSTA RICA, PANAMA, AND PUERTO RICO

IN continuation of the study of critical collections accumulated primarily by the University of Michigan expeditions and by collectors co-operating with the University Herbarium, one new genus, fifty new species, and one variety are described. To *Onohualcoa*, a new genus in the *Bignoniaceae*, one species of the Yucatán Peninsula, *Adenocalymma Seleri* Loes., is referred. Along with notes on various interesting plants, two other new combinations are proposed. *Sideroxylon Matudai* Lundell, described from fruiting material, is transferred to *Dipholis* on the basis of flowering specimens now available. Consistent with the writer's contention that *Licaria*, a generic name of doubtful application, should not be accepted, *Licaria triandra* (Swartz) Kosterm. is transferred to *Acrodiclidium*.

This paper has been published with funds derived from the income of the endowment of the Horace H. Rackham School of Graduate Studies of the University of Michigan.

Smilax chiapensis Lundell, sp. nov.—Caules inferiores ignoti, superiores tenues, subteretes, striati, glabri, inermes. Folia petiolata, petiolo ad 1.8 cm. longo, lamina chartacea, glabra, late ovata, 7.5–9.5 cm. longa, 3.5–7 cm. lata, apice subabrupte acuminata, basi rotundata, truncata, vel subcordata et abrupte acuta, concolor, inermis, integra, 7-nervia, nervis et venis valde reticulatis supra elevatis. Pedunculi ♂ solitarii, 2–6.5 mm. longi, angulati. Pedicelli ad 4 mm. longi. Perianthii segmenta linearioblonga, 6.5–7.5 mm. longa, ad 2.3 mm. lata, patentia. Filamenta 4–5 mm. longa. Antherae filamentis breviores, 2.2–2.9 mm. longae.

Stems subterete, striate, wiry, unarmed, glabrous. Petioles up to 1.8 cm. long, canaliculate, rather slender, articulate above the middle. Leaf blades chartaceous, glabrous, broadly ovate, 7.5 to

9.5 cm. long, 3.5 to 7 cm. wide, apex subabruptly acuminate, base rounded, truncate, or subcordate, and abruptly decurrent and acute, unarmed, entire, not lobed, shining above, concolorous, 7-nerved, the outer nerves submarginal, the nerves and prominently reticulate veins elevated on both surfaces. Peduncles of ♂ umbels glabrous, 2 to 6.5 mm. long, stout, angled, solitary. Receptacle globose, up to 4.5 mm. in diameter. Pedicels up to 4 mm. long. Perianth segments linear-oblong, 6.5 to 7.5 mm. long, up to 2.3 mm. wide. Stamens 6; filaments 4 to 5 mm. long; anthers 2.2 to 2.9 mm. long, emarginate at apex. Pistillate flowers and fruits unknown.

Mexico: Chiapas, Mt. Ovando, altitude 1000 m., Nov. 14 to 18, 1939, *Eizi Matuda 3988* (type in the University of Michigan Herbarium).

The collection was distributed as *S. lanceolata* L. to which *S. chiapensis* is related. The 7-nerved leaves, different in aspect, and the larger staminate flowers amply distinguish it from that well-known species.

S. chiapensis is nearer *S. Kunthii* Killip & Morton. In that species the pedicels are 5 to 7 mm. long compared with pedicels up to 4 mm. long in *S. chiapensis*, the perianth segments are only 4.5 to 5 mm. long compared with 6.5 to 7.5 mm. long in *S. chiapensis*, and the filaments and anthers are more than a third smaller. In view of specific limits in the genus, these are significant differences. Further, *S. chiapensis* is unarmed, and the petioles are articulate above the middle.

Smilax rufa Lundell, sp. nov.—Caules inermes, subteretes, rufo-tomentosi. Folia petiolata, petiolo ad 4 cm. longo, lamina chartacea vel subcoriacea, late ovata, ad 15 cm. longa, 10.5 cm. lata, apice acuminata, basi cordata, integra, inermis, subtus rufo-tomentosa, 5- vel 7-nervia. Pedunculus ♀ umbellarum ad 3 cm. longus, solitarius, axillaris, petiolo brevior, compressus. Pedicelli ad 9 mm. longi, rufo-tomentosi. Perianthii segmenta ca. 3.5 mm. longa, externe pubescentia. Staminodia 3.

Stems unarmed, subterete, inconspicuously striate, at first red-tomentose, the tomentum persistent at the nodes, the internodes

glabrescent with age. Petioles up to 4 cm. long, glabrescent at maturity (excepting sheath). Leaf blades chartaceous or subcoriaceous, broadly ovate, up to 15 cm. long, 10.5 cm. wide, apex acuminate, base openly cordate, entire, unarmed, glabrescent and shining above at maturity, persistently red-tomentose on the undersurface, the indument of fine matted hairs, 5- to 7-nerved, the secondary veins and veinlets prominently reticulate on both surfaces. Peduncles of ♀ umbels up to 3 cm. long, flattened, shorter or subequaling the subtending petioles, persistently tomentose. Receptacle depressed-globose, up to 5 mm. in diameter, the bracteoles numerous, red-tomentose. Pedicels tomentose, up to 9 mm. long. Perianth pubescent, the segments linear, about 3.5 mm. long. Staminodia 3, subulate, sometimes bilobed almost to the middle. Ovary ellipsoid; stigmas minute. Staminate flowers and fruits not known.

MEXICO: Chiapas, Mt. Male, near Porvenir, altitude 3200 m., July 6, 1941, *Eizi Matuda 4591* (type in the University of Michigan Herbarium).

S. rufa, which has affinity to *S. subpubescens* A.DC., differs from that species in having 3 staminodia, minute stigmas, and leaves tomentose at maturity on the undersurface. The indument of *S. subpubescens* is coarser, and all parts of the plant are glabrescent with age. A remarkable characteristic of *S. rufa* is the occurrence of bilobed staminodia in some flowers.

Myrica Holdridgeana Lundell, sp. nov.—Frutex, ramulis pilosis et glandulosis. Folia petiolata, chartacea, bullata, cuneato-obovata, ad 3.3 cm. longa, 1.9 cm. lata, apice rotundata, margine minute denticulata, utrinque parce pilosa, discis glandulosis supra evanescentibus, subtus creberrimis impressis. Spicae ♂ ad 1.5 cm. longae; bracteae ovatae, ad 1.2 mm. longae, acutae vel subabrupte acuminatae. Stamina 2–4, filamentis pilosis. Spicae ♀ ad 1.5 mm. longae.

A dioecious shrub; branchlets slender with short internodes, subappressed pilose and glandular. Leaves crowded on the short branchlets; petioles 2.5 to 5 mm. long, pilose; leaf blades chartaceous, bullate, cuneate-obovate, up to 3.3 cm. long, 1.9 cm. wide,

apex rounded, margin denticulate to below the middle, teeth usually 6 to 10 on each side, sparsely pilose on both surfaces, especially along the veins, at first covered with yellow glands on both surfaces, those on upper surface disappearing early, those on undersurface pitted, persistent, costa and veins impressed above, conspicuous beneath, primary veins 3 to 5 on each side, almost horizontal. Staminate spikes axillary, solitary, up to 1.5 cm. long, the rachis pilose; bracts sessile, ovate, up to 1.2 mm. long, apex acute or subabruptly short acuminate, pilose and glandular on outside; bracteoles 0 to 3, inserted at base and at apex of the staminal column. Stamens 2 to 4, the filaments pilose. Pistillate spikes minute, up to 1.5 mm. long.

Puerto Rico: Sierra de Luquillo, Monte El Toro trail, near headwaters of Río Espiritu Santo, altitude about 800 m., in high ridge, May 10, 1940, *W. C. Steere 7073* ♂ (type in the University of Michigan Herbarium); same locality, May 11, 1940, *Steere 7077* ♀.

M. Holdridgeana is allied to *M. cerifera* L. The fewer stamens and the small cuneate-obovate bullate leaves denticulate to below the middle amply distinguish the species. Further, *M. Holdridgeana* is a forest species apparently restricted to higher altitudes.

At the request of the collector, the plant is named for Mr. Leslie R. Holdridge in recognition of his fine work in Puerto Rico.

Ficus chiapensis Lundell, sp. nov.—Arbor, 20-metralis, trunco 70 cm. diam., ramulis crassis, glabris. Stipulae ciliolatae, ad 2.3 cm. longae. Folia petiolata, glabra, coriacea, cuneato-obovata vel obovata, 13.5–25 cm. longa, 6.5–13 cm. lata, apice rotundata, basi obtusa vel rotundata. Receptacula axillaria, geminata, sessilia, depresso-globosa, ad 1.5 cm. diam., puberula, ostiolo paullo elevato, involucro bilobato, extus hirtello, lobis ad 1 cm. longis.

A tree, 20 m. high, 70 cm. in diameter; branchlets thick, glabrous. Stipules triangular, 1.2 to 2.3 cm. long, ciliolate, glabrous otherwise. Petioles stout, canaliculate, glabrous, 1.4 to 4 cm. long. Leaf blades coriaceous, glabrous, cuneate-obovate or

obovate, 13.5 to 25 cm. long, 6.5 to 13 cm. wide, apex rounded, sometimes obtusely apiculate, base narrowed, obtuse or rounded, costa thick, plane above, prominent on undersurface, primary veins conspicuous beneath, 7 to 12 on each side. Receptacles axillary, geminate, sessile, depressed-globose, up to 1.5 cm. in diameter (immature), puberulent, the ostiole elevated; involucre bilobed, up to 1 cm. long, hirtellous outside.

MEXICO: Chiapas, between Mazapa and Motozintla, altitude 1200 m., in advanced forest, July 19, 1941, *Eizi Matuda 4862* (type in the University of Michigan Herbarium).

The resemblance to *F. involuta* (Liebm.) Miq. is striking, but the larger wider leaves and sessile receptacles well mark the species.

Struthanthus capitatus Lundell, sp. nov.—Frutex epiphyticus glaber. Folia petiolata, subcoriacea vel coriacea, lanceolata, 5.5–11 cm. longa, 1.8–5 cm. lata, apice acuminata, basi acuta. Inflorescentiae capitatae, axillares, solitariae, ad 1 cm. longae. Flores sessiles. Calyx truncatus. Petala ca. 4.5 mm. longa. Stylus contortus, ca. 4 mm. longus.

A woody epiphytic vine, entirely glabrous; branchlets slender, wiry, reddish, terete but slightly compressed at the nodes. Petioles rather stout, canaliculate, 4 to 10 mm. long. Leaf blades subcoriaceous or coriaceous, lanceolate, 5.5 to 11 cm. long, 1.8 to 5 cm. wide, apex acuminate, base acute, decurrent, costa conspicuous on both surfaces, primary veins slender, scarcely evident, about 6 on each side. Inflorescences capitate, axillary, solitary, up to 1 cm. long, including peduncle up to 2.5 mm. long. Flowers sessile, usually in clusters of 3, the clusters sessile, forming a head; bractlets persistent. Calyx truncate, very obscurely denticulate. Petals 6, linear, about 4.5 mm. long. Stamens abortive, in 2 series; anthers of the shorter 3 sessile, anthers of the other 3 borne on filaments free at apex. Style contorted, about 4 mm. long.

MEXICO: Chiapas, Letrero, near Siltepec, altitude 2000 m., in virgin forest, July 6, 1941, *Eizi Matuda 4327* (type in the University of Michigan Herbarium).

The small capitate inflorescences are noteworthy.

Coccoloba fluviatilis Lundell, sp. nov.—Arbor, 10 m. alta, glabra. Stipulae ad 6 mm. longae. Folia petiolata, petiolo crasso 1–1.7 cm. longo, lamina coriacea, elliptico-oblonga, 9.5–17.5 cm. longa, 5–9.5 cm. lata, apice obtusa, basi subcordata. Inflorescentiae subspicatae, 8.5–15 cm. longae, rachidibus glabris, angulatis, nodulis 1-floris; bracteae et ochreolae ad 1.3 mm. longae. Pedicelli fructiferi ad 1 mm. longi.

A tree, 10 m. high, glabrous throughout; branchlets rather slender, striate. Stipules cylindrical, red barbate at apex, up to 6 mm. long, with the petiole inserted at base. Petioles stout, canaliculate, 1 to 1.7 cm. long. Leaf blades pallid, coriaceous, elliptic-oblong, 9.5 to 17.5 cm. long, 5 to 9.5 cm. wide, apex bluntly obtuse, base subcordate, costa prominent, elevated beneath, primary veins 6 or 7 on each side, conspicuous on both surfaces, veinlets finely reticulate. Inflorescences terminal, simple, subspicate, 8.5 to 15 cm. long; rachis glabrous, angled, rather stout; nodules 1-flowered; bracts about 1.3 mm. long, equaling ochreolae. Pedicels subequaling ochreolae, up to 1 mm. long, stout. Fruits (immature) subpyriform.

Mexico: Chiapas, Malpaso, near Siltepec, altitude 1000 m., riverside, July 21, 1941, *Eizi Matuda 4517* (type in the University of Michigan Herbarium).

C. fluviatilis belongs in the group which includes *C. Jurgenseni* Lindau and *C. mayana* Lundell. The large glabrous leaves subcordate at base, the stout petioles up to 1.7 cm. long, the glabrous rachis of the inflorescences, and the subsessile fruits are characteristics distinguishing this species.

Coccoloba Matudai Lundell, sp. nov.—Arbor, ramulis crassis, glabris, striatis. Folia petiolata, coriacea, ovato-lanceolata vel ovato-elliptica, 10.5–26 cm. longa, 5.3–13 cm. lata, apice attenuata, obtusa vel subacuminata, basi cordata vel rotundata, subtus barbata. Inflorescentiae minute puberulae, terminales, paniculatae, ad 25 cm. longae, nodulis 1- raro 2-floris. Bracteae 0.7–0.9 mm. longae. Ochreolae ca. 1 mm. longae. Pedicelli ad 2.3 mm. longi. Perianthii tubus ca. 0.9 mm. longus; lobi ovato-elliptici, ca. 1.5 mm. longi. Styli 3.

A tree, 10 to 12 m. high, 25 cm. in diameter; branchlets stout, glabrous, striate. Stipules large, up to 1.4 cm. long, red barbate at apex, glabrous otherwise, with petiole inserted at base. Petioles rather stout, essentially glabrous, 1 to 3.5 cm. long. Leaf blades coriaceous, ovate-lanceolate or ovate-elliptic, 10.5 to 26 cm. long, 5.3 to 13 cm. wide, apex narrowed, obtuse or obtusely subacuminate, base shallowly cordate or rounded, barbate beneath along the costa and in the axils of the primary veins, glabrous otherwise, areolate, the costa and veins prominulous above, prominent beneath, primary lateral veins 7 or 8 on each side. Inflorescence minutely puberulent, terminal, paniculate, the panicles sessile, composed of 3 to 5 racemes, the racemes up to 25 cm. long, usually less than 15 cm. long; nodules usually 1-flowered, sometimes 2-flowered; bracts 0.7 to 0.9 mm. long, glabrous; ochreolae tubular, about 1 mm. long; pedicels about twice as long as ochreolae, up to 2.3 mm. long, very minutely and obscurely puberulent. Pistillate flowers about 2.4 mm. long, the lobes ovate-elliptic, about 1.5 mm. long; stamens abortive, shorter than perianth lobes; ovary triquetrous; styles 3, slightly exserted. Staminate flowers about 3 mm. long, the lobes ovate-elliptic; stamens slightly longer than perianth lobes; ovary and styles abortive.

Mexico: Chiapas, Sierra Madre, Saxchanal, altitude 2700 m., in advanced forest, July 1, 1941, *Eizi Matuda 4315* (type in the University of Michigan Herbarium), a tree, 10 m. high; Mapastepec, Finca Olvido, Jan., 1938, *Matuda 2002*, a tree, 12 m. high, 35 cm. in diameter.

C. Matudai is allied to *C. belizensis* Standl.

Neea belizensis Lundell, sp. nov.—Frutex, ramulis rufo-tomentellis. Folia petiolata, membranacea, oblanceolato-elliptica vel oblongo-elliptica, 7–15 cm. longa, 3–6 cm. lata, apice acuminata, basi acuta. Flores ♂ cymoso-paniculati, paniculis rufo-tomentellis, ad 9 cm. longis. Perianthium tubulosum, ca. 3 mm. longum. Staminodia 7 vel 8. Fructus ellipsoideus, ca. 1 cm. longus.

A shrub, usually 1 to 2 m. high; branchlets terete, slender, at first thinly tomentellous with reddish hairs. Petioles slender, 5 to 11 mm. long, canaliculate. Leaf blades membranaceous, oblanceo-

late-elliptic or oblong-elliptic, 7 to 15 cm. long, 3 to 6 cm. wide, apex abruptly or subabruptly acuminate, base acute, decurrent, sparsely appressed puberulent on both surfaces at first, essentially glabrous with age, primary veins slender, 7 to 9 on each side, evident on both surfaces. Pistillate cymes up to 9 cm. long including peduncle up to 5.5 cm. long, lax, reddish tomentellous, bractlets subulate, the longest 1.2 mm. long. Flowers sessile or short pedicellate, the perianth tubular, thinly reddish tomentellous, about 3 mm. long, 5-dentate, conspicuously thickened in throat within. Staminodia 7 or 8, the rudimentary anthers well developed. Fruits dark red, pulpy, narrowly ellipsoid, about 1 cm. long, the testa costate.

British Honduras: El Cayo District, El Cayo, on river bluffs, Feb. 13, 1931, *H. H. Bartlett 11445* (type in the University of Michigan Herbarium), about 1 m. tall, flowers deep red.

This species, abundantly represented by collections from the southern half of the Yucatán Peninsula, has been confused with *N. psychotrioides* Donn. Sm. *N. belizensis* is allied to *N. choriophylla* Standl., but differs from that species in its thin large leaves, ample inflorescences, and in the number of staminodia. *N. belizensis* has 7 or 8 staminodia, whereas *N. choriophylla* has 6 or 7. *N. stenophylla* Standl. resembles superficially some of the British Honduran material, but it differs at once in having a pistillate perianth without the conspicuous thickening of the throat; further, its staminodia are stipitiform in part, its leaves are narrower and smaller, and its inflorescences are reduced.

N. psychotrioides, the type of which has been examined, is not represented in the peninsula by any collections now available. The ellipsoid pistillate perianth and 8 to 10 staminodes amply distinguish it from *N. belizensis*.

The species of *Neea* are exasperatingly difficult to distinguish, and additional staminate material may show that the collections now referred tentatively to *N. belizensis* represent several species. The variations in leaf form are considerable.

Neea turbinata Lundell, sp. nov.—Arbor parva, ramulis juventate rufo-puberulis. Folia petiolata, membranacea, elliptica

vel oblongo-elliptica, 3–10.5 cm. longa, 1.4–4.5 cm. lata, apice obtusa vel subabrupte acuminata, acumine acuta vel obtusiuscula, basi acutiuscula vel rotundata. Flores ♂ cymoso-paniculati, paniculis dense glanduloso-puberulis, ad 10.5 cm. longis, pedicellis ad 4 mm. longis. Perianthium turbinatum, ca. 6 mm. longum, rufo-puberulum. Stamina 7 vel 8. Flores ♀ cymoso-paniculati, paniculis parvis, ca. 5 cm. longis, floribus sessilibus vel subsessilibus. Perianthium ca. 2.5 mm. longum. Fructus ellipsoideus, ca. 7 mm. longus.

A small tree; branchlets rather slender with short internodes, at first rufo-puberulent. Petioles rufo-puberulent, 3.5 to 11 mm. long. Leaf blades membranaceous, drying blackish, at first sparsely rufo-puberulent at base and along costa on both surfaces, glabrous with age, elliptic or oblong-elliptic, 3 to 10.5 cm. long, 1.4 to 4.5 cm. wide, apex obtuse or subabruptly short acuminate, the acumen usually obtusish, base acutish or rounded, primary veins slender, 7 to 10 on each side. Staminate cymes up to 10.5 cm. long, including peduncles about 5 cm. long, 8 cm. wide, laxly flowered, densely puberulent, the minute hairs apparently glandular; pedicels slender, up to 4 mm. long, the 3 bractlets minute, triangular-oblong, about 0.5 mm. long; perianth turbinate, acutish at base, about 6 mm. long, 3.5 mm. diameter, rufo-puberulent; stamens 7 or 8, unequal, the longer about two-thirds as long as perianth. Pistillate cymes small, about 5 cm. long including peduncle, densely puberulent or tomentellous, flowers sessile or subsessile, the perianth tubular-funnelform, scarcely 2.5 mm. long, puberulent, 4- or 5-dentate, style exserted. Fruits ellipsoid (immature), 7 mm. long, borne on short pedicels.

Mexico: Chiapas, Escuintla, Jan. 12, 1936, *Eizi Matuda 913* (type in the University of Michigan Herbarium); same locality, April 2, 1936, *Matuda 647;* same locality, Dec. 13, 1936, *Matuda 948;* same locality, altitude 160 m., July, 1938, *Matuda 2615*, a tree, 5 m. high, 20 cm. in diameter, flowers white.

The material is remarkably uniform. The closest ally probably is *N. chiapensis* Standl., a plant with much larger leaves and fruits. The membranaceous leaves drying blackish, the densely glandular-puberulent inflorescence, and the turbinate staminate perianth characterize the species.

Acrodiclidium lucidum Lundell, sp. nov.—Arbor, ramulis glabris. Folia petiolata, rigide coriacea, glabra, areolata, supra lucida, lineari-lanceolata, 5–11 cm. longa, 1–2 cm. lata, apice attenuata, acuminata, basi attenuata, acuta. Infructescentiae ad 2 cm. longae. Cupula crassa, lobata, verruculosa, duplicimarginata. Bacca ellipsoidea, ca. 1.8 cm. longa, 1.2 cm. diam.

A tree, 10 meters high; branchlets slender, rigid, entirely glabrous; buds glabrous. Petioles stout, canaliculate, 3 to 5 mm. long. Leaf blades rigidly coriaceous, entirely glabrous, inconspicuously areolate, shining above, dull on undersurface, linear-lanceolate, 5 to 11 cm. long, 1 to 2 cm. wide, apex attenuate, acuminate, the acumen often obtusish, base attenuate, acute, decurrent, costa prominent but plane on both surfaces, primary veins slender, very inconspicuous, 15 to 17 on each side. Infructescence up to 2 cm. long, stout; fruiting pedicels stout, up to 5 mm. long. Cupule 1.2 to 1.5 cm. high, about 1.7 cm. in diameter, about 1 cm. deep inside; the outer margin thick, verruculous, 6-lobed, the inner thin, entire, conspicuous, 4 to 5 mm. high, enclosed. Berry ellipsoid, smooth, about 1.8 cm. long, 1.2 cm. in diameter.

Mexico: Chiapas, Santa Rosa, near Escuintla, altitude 1600 m., in advanced forest, June 20, 1941, *Eizi Matuda 4239* (type in the University of Michigan Herbarium).

Although flowers are not available, the double margined cupule, characteristic of *Acrodiclidium*, makes its reference to this genus unquestionable. The species has affinity to *A. campechianum* (Standl.) Lundell.

Acrodiclidium triandrum (Swartz) Lundell, comb. nov.—*Laurus triandra* Swartz, *Prodr.*, p. 65. 1788.

Persea Chamissonis Mez, *Jahrb. Bot. Gart. Mus. Berlin*, 5: 168. 1889.

Mexico: Chiapas, Pinada, near Siltepec, Jan., 1938, *Eizi Matuda 1942*, a tree, 7 m. high, 30 cm. in diameter; Mt. Paxtal ("Pasitar"), Dec., 1936, *Matuda 2209A*; Letrero, near Siltepec, altitude 2000 m., in virgin forest, July 6, 1941, *Matuda 4355*, a tree, 15 m. high.

The species was described from incomplete material. *Liebmann 1*, cited by Mez in the original description, has small leaves and inflorescences not comparable in size with those of the robust Chiapas specimens cited above. However, the Matuda collections agree otherwise so closely that reference of the material to *P. Chamissonis* appears to be justifiable.

The leaves of *Matuda 4355* are suborbicular, up to 20 cm. long, 16 cm. wide, and the inflorescences reach a length of 12 cm.

Phoebe areolata Lundell, sp. nov.—Arbor, ramulis novellis parce sericeis. Folia petiolata, coriacea, areolata, ovato-lanceolata vel lanceolata, 6.5–11 cm. longa, 2.4–4.5 cm. lata, apice acuminata, basi rotundata. Inflorescentiae subcorymboso-paniculatae, parce sericeae, ad 11 cm. longae. Pedicelli 4–7 mm. longi. Flores 3–3.5 mm. longi. Filamenta adpresse pilosa, antheris paullo breviora. Antherae 4-locellatae. Ovarium glabrum.

A tree; brachlets rather slender, angled, at first sparsely sericeous, drying dark brown. Petioles rather stout, canaliculate, usually 3 to 7 mm. long, sometimes up to 9 mm. long, sparsely sericeous. Leaf blades coriaceous, conspicuously areolate beneath, ovate-lanceolate or lanceolate, 6.5 to 11 cm. long, 2.4 to 4.5 cm. wide, apex attenuate, acuminate, base rounded and abruptly acutish, costa shallowly impressed above, prominent beneath, penninerved, the primary veins 5 or 6 on each side, sparsely sericeous at first, mature leaves glabrous on upper surface, barbate beneath in the axils of the primary veins, glabrous otherwise. Inflorescence axillary, subcorymbose-paniculate, sparsely sericeous, up to 11 cm. long, usually shorter than the leaves, few-flowered, long stalked. Pedicels slender, sparsely sericeous, 4 to 7 mm. long. Flowers essentially glabrous outside, 3 to 3.5 mm. long; perianth tube short; lobes ovate-oblong, 2 mm. long, obtusish, densely sericeous within. Filaments appressed pilose, slightly shorter than anthers; glands of series III subsessile, borne at base of filament. Anthers 4-celled. Staminodia large, the filaments thick, appressed pilose. Ovary glabrous, equaling style.

Mexico: Chiapas, Sierra Madre, Saxchanal, July 1, 1941, *Eizi Matuda 4296* (type in the University of Michigan Herbarium).

P. areolata is nearest *P. chiapensis* Lundell, a species with narrower leaves not barbate beneath in the axils of the primary veins.

Phoebe saxchanalensis Lundell, sp. nov.—Arbor parva, ramulis angulatis, dense sericeis. Folia petiolata, chartacea vel subcoriacea, anguste lanceolata, 4.5–10.5 cm. longa, 1.3–2.6 cm. lata, apice attenuata, acuminata, basi acutiuscula, subtus sericea. Infructescentiae racemosae, axillares, ad 4 cm. longae. Bacca ellipsoidea, ad 2 cm. longa, 1.1 cm. diam.

A small tree, 5 meters high; branchlets rather slender, inconspicuously angled at first, densely sericeous. Petioles comparatively stout, canaliculate, densely sericeous, 6 to 12 mm. long. Leaf blades chartaceous or subcoriaceous, paler beneath, narrowly lanceolate, 4.5 to 10.5 cm. long, 1.3 to 2.6 cm. wide, apex attenuate, acuminate, the acumen acute or obtusish, base acutish, often slightly inaequilateral, sericeous on undersurface and along midvein above, not barbate, costa plane or slightly impressed above, prominent beneath, primary lateral veins irregular, slender, 7 to 11 on each side, veinlets very inconspicuously reticulate. Infructescence racemose, axillary, the rachis sericeous, up to 4 cm. long. Pedicels of fruits enlarged, obconical, 7 to 10 mm. long including persistent cupule. Perianth segments deciduous, the cupule very shallow, up to 6 mm. in diameter, 1.5 mm. in depth. Fruits ellipsoid, up to 2 cm. long, 1.1 cm. in diameter, glabrous.

Mexico: Chiapas, Sierra Madre, Saxchanal, altitude 2700 m., in virgin forest, *Eizi Matuda 4311* (type in the University of Michigan Herbarium).

P. saxchanalensis has affinity to *P. acuminatissima* Lundell.

Prunus guatemalensis Johnston, *Journ. Arn. Arb.*, 19: 118. 1938.

Mexico: Chiapas, Ventana, near Siltepec, altitude 2100 m., in virgin forest, July 25, 1941, *Eizi Matuda 4546*, a tree, 15 m. high. Guatemala: Department of Chimaltenango, Chichavac, altitude 2400 to 2700 m., in forest in deep valley, July 29, 1933, *A. F. Skutch 504* (type in the herbarium of Arnold Arboretum), a

medium sized tree, about 18 m. tall with trunk 4 dm. thick at breast height.

Although the indument is persistent on the undersurface of the leaves in the Chiapas material, the collection agrees very closely with the type. The bullate coarsely veined leaves are noteworthy.

Pithecolobium (*Cojoba*) **escuintlense** Lundell, sp. nov.—Arbor parva, ramulis angulatis, ferrugineo-tomentellis. Folia bipinnata, petiolata; pinnis 3-jugis, raro 2- vel 4-jugis; foliolis 4–9-jugis, sessilibus, oblongo-lanceolatis, 1.3–3.5 cm. longis, 0.5–1.4 cm. latis, apice obtusis, reticulatis. Inflorescentiae axillares, capitatae; pedunculis ad 5 cm. longis, ferrugineo-tomentellis. Flores ferrugineo-tomentelli. Calyx ca. 2.1 mm. longus. Corolla ca. 5 mm. longa, lobis 1 mm. longis. Legumen ad 15 cm. longum.

A tree, 10 m. high; branchlets angled, reddish brown, ferruginous-tomentellous. Petiole and rachis ferruginous-puberulent, the petiole up to 3.5 cm. long, the rachis up to 8 cm. long; glands small, disciform, borne between the pinnae; pinnae usually 3 pairs, sometimes 2 or 4 pairs; leaflets chartaceous or subcoriaceous, usually 6 to 9 pairs, sometimes only 4 pairs, sessile, oblong-lanceolate, 1.3 to 3.5 cm. long, 0.5 to 1.4 cm. wide, apex obtuse, base oblique, rounded, puberulent above along the midvein and at base along the margin, glabrous otherwise, the midvein excentric, subpalmately veined at base, the primary veins strongly ascending, slender but conspicuous, veinlets reticulate on undersurface. Peduncles axillary, ferruginous-tomentellous, up to 5 cm. long, usually bearing a bract above the middle. Flowers capitate; bractlets apparently minute, deciduous early. Calyx about 2.1 mm. long, denticulate, ferruginous-tomentellous. Corolla about 5 mm. long, ferruginous-tomentellous, the lobes oblong, 1 mm. long. Stamen tube included. Legume red, sparsely ferruginous-puberulent, up to 15 cm. long, 1.2 cm. in diameter, moniliform.

Mexico: Chiapas, Santa Rosa, near Escuintla, altitude 1600 m., in advanced forest, June 20, 1941, *Eizi Matuda 4260* (type in the University of Michigan Herbarium).

The species, like most of the others of this group, differs from the allied forms in minor yet significant characteristics. The few

rather large, almost glabrous, obtuse leaflets, and 2 to 4 pairs of pinnae indicate a close relationship with *P. graciliflorum* Blake of British Honduras. The strongly ascending primary veins of the leaflets, reticulation of the veinlets on the undersurface, minute deciduous bractlets, tomentellous flowers, calyx about 2 mm. long, and corolla about 5 mm. long distinguish *P. escuintlense*. *P. sophorocarpum* Benth. is described as having reticulate veined leaflets, but that species differs in having glabrous flowers as well as leaflets acute and puberulent on the midvein beneath.

The calyx and corolla of *P. escuintlense* were described from parts persisting in fruit.

Pithecolobium (*Cojoba*) **siltepecense** Lundell, sp. nov.—Frutex. Folia petiolata, parce substrigosa et glanduloso-puberula; pinnis 2–6-jugis; foliolis ciliatis, 11–28-jugis, oblongis, ad 11 mm. longis, 3 mm. latis, apice acutis, basi subtruncatis. Inflorescentiae axillares, capitatae, pedunculis 1, gracilibus, ca. 6 cm. longis. Calyx ca. 3 mm. longus, 5-dentatus. Corolla ca. 6.5 mm. longa, parce strigosa. Stamina ca. 2.8 cm. longa. Ovarium subglabrum; stylus parce pubescentibus.

A shrub, 1 m. high; twigs, leaves, and peduncles sparsely substrigose and glandular-puberulent, the coarse hairs usually white, appressed or sometimes spreading. Leaves with rachis 2.8 to 5.5 cm. long, bipinnate; pinnae 2 to 6 pairs, up to 8.5 cm. long; leaflets subsessile, 11 to 28 pairs, oblong, up to 11 mm. long, 3 mm. wide, apex abruptly acute, usually oblique, base asymmetrical, subtruncate, ciliate with long subappressed white hairs, glabrous otherwise, costa plane above, nearly plane on undersurface, primary veins nearly horizontal, inconspicuous. Inflorescence capitate, on axillary peduncle; peduncle solitary, slender, reflexed, about 6 cm. long. Flowers few in head, subtended by linear bracts, the bracts substrigose, about 1.5 mm. long. Calyx about 3 mm. long, sparsely strigose, 5-dentate, the teeth acutish, unequal, up to 1 mm. long, sparsely glandular-puberulent and ciliate. Corolla about 6.5 mm. long, sparsely strigose, 5-lobed, the lobes lanceolate-oblong, acute. Stamens about 2.8 cm. long, the filaments united at base into a tube about 5 mm. long. Ovary and style bearing a few long coarse white hairs.

MEXICO: Chiapas, Barranca Honda, Siltepec, Oct. to Nov., 1940, *Eizi Matuda 4132* (type in the University of Michigan Herbarium).

P. siltepecense is allied to *P. Matudai* Lundell. In stamen length, pubescence, and in various minor characteristics the two species diverge.

Picramnia velutina Lundell, sp. nov.—Frutex, ramulis crassiusculis, velutino-pilosis. Folia petiolata, usque ad 19 cm. longa; foliola 21–29, chartacea, pilosa, ovato-rhombica, ovata vel lanceolato-oblonga, 1–3 cm. longa, 0.7–1.8 cm. lata, raro ad 4.5 cm. longa, apice obtusa, basi obtusiuscula. Inflorescentiae ♀ terminales, ad 18 cm. longae, velutino-pilosae. Pedicelli ad 6 mm. longi. Calyx pubescentibus. Sepala 3, raro 4, ovata, 1 mm. longa. Petala 3, raro 4, glabra, lanceolata, ca. 1.4 mm. longa. Ovarium velutino-pilosum.

A shrub, 2 m. high; branchlets rather stout, densely pubescent. Leaves petiolate, up to 19 cm. long, the petiole and rachis densely velutinous-pilose. Leaflets 21 to 29, borne on petiolules less than 2 mm. long; the blades chartaceous, ovate-rhombic or ovate, the apical lanceolate-oblong, usually 1 to 3 cm. long, 0.7 to 1.8 cm. wide, the apical ones sometimes up to 4.5 cm. long, apex obtuse, base strongly inaequilateral, obtusish, at first pilose on both surfaces, persistently pilose beneath, but at length glabrous above except along the midvein, costa plane above, prominent beneath, primary veins slender, 3 or 4 on each side. Pistillate inflorescences terminal, usually equaling the leaves, up to 18 cm. long, the rachis velutinous-pilose; flowers racemose, in glomerules of 2 to 4. Pedicels slender, pilose, up to 6 mm. long. Calyx pubescent, the sepals usually 3, sometimes 4, ovate, 1 mm. long. Petals glabrous, usually 3, sometimes 4, lanceolate, about 1.4 mm. long. Staminodia stipitiform, fleshy. Ovary velutinous-pilose.

MEXICO: Chiapas, Santa Rosa, near Escuintla, altitude 1600 m., in advanced forest, June 20, 1941, *Eizi Matuda 4229* (type in the University of Michigan Herbarium).

P. velutina has affinity to *P. pistaciaefolia* Blake & Standl. of Oaxaca and Chiapas and *P. locuples* Standl. of Honduras. *P. locuples*, of which type material has been examined, differs in

having glabrous longer pedicels, glabrous ovaries, and leaflets hairy on the costa and margin only. The velutinous indument of *P. velutina* distinguishes it from *P. pistaciaefolia.*

ZANTHOXYLUM MOLLISSIMUM (Engler) P. Wils., *Bull. Torrey Bot. Club,* 37: 86. 1910. *Z. Matudai* Lundell, *Amer. Midland Nat.,* 20: 236. 1938.

MEXICO: Chiapas, Finca Suiza, near Montecristo, altitude 1700 m., Jan., 1938, *Eizi Matuda 1920* (type of *Z. Matudai*), an unarmed bush; between Mazapa and Motozintla, altitude 1200 m., July 19, 1941, *Matuda 4854.*

Matuda 1920 closely matches the photograph of the type of *Z. mollissimum.* The other collection, *Matuda 4854,* has leaflets which are narrower than typical for the species, but no other differences are obvious from the material available. The species is well marked by the setaceous deciduous sepals, and the indument.

Croton chiapensis Lundell, sp. nov.—Frutex, ramulis stellato-tomentosis. Stipulae setaceae, ca. 5 mm. longae. Folia petiolata, petiolo 2–7 mm. longo, lamina chartacea, oblonga, oblongo-elliptica, vel lanceolato-oblonga, 2–4.5 cm. longa, 1–2 cm. lata, apice acuta vel acuminata, basi rotundata vel obtusa, margine subintegra, supra subbullata, stellato-pubescentia, subtus albido-stellato-tomentosa, venis 5–8-jugis, primo jugo subtriplinervio. Inflorescentiae unisexuales vel bisexuales, ad 2.5 cm. longae, stellato-tomentosae. Flores ♀ breviter pedicellati, pedicello ad 1 mm. longo; calyce ca. 4 mm. longo, lobis 5, lineari-lanceolatis; ovario stellato-hispido, stylis 3, bipartitis. Flores ♂ pedicellati; staminibus 18, filamentis pilosis.

A shrub; branches stout, striate, dark red, glabrate; branchlets slender, short, stellate-tomentose. Stipules setaceous, about 5 mm. long. Petioles 2 to 7 mm. long. Leaf blades chartaceous, green and subbullate above, oblong, oblong-elliptic, or lanceolate-oblong, 2 to 4.5 cm. long, 1 to 2 cm. wide, apex acute or acuminate, base rounded or obtuse, margin subentire, stellate-pubescent on upper surface, the hairs stalked, the central ray often elongated, white stellate-tomentose on undersurface, base subtriplinerved, veins

impressed above, prominent beneath, primary veins 5 to 8 on each side. Inflorescences unisexual or bisexual, up to 2.5 cm. long, crowded, stellate-tomentose, the central ray of hairs elongated; bracts setaceous; flowers solitary. Pistillate flowers borne on pedicels up to 1 mm. long, apetalous; calyx about 4 mm. long, 5-lobed, the lobes linear-lanceolate, acuminate; ovary stellate-hispid; styles hispid, the branches once dichotomous. Staminate flowers pedicellate, pedicels up to 2.8 mm. long; calyx 3 mm. long, stellate-pubescent, usually 6-lobed, the lobes ovate; petals usually 6, oblanceolate, about 3 mm. long, villous; receptacle villous; stamens 18, filaments pilose.

MEXICO: Chiapas, Escuintla, altitude 160 m., July, 1938, *Eizi Matuda 2614* (type in the University of Michigan Herbarium).

C. rhamnifolius H. B. K. apparently is closely related, but the smaller leaves, petioles only 2 to 7 mm. long, conspicuous setaceous stipules, and inflorescences only up to 2.5 cm. long amply distinguish *C. chiapensis* from that species.

Croton mazapensis Lundell, sp. nov.—Frutex, ramulis albido-stellato-tomentosis. Folia petiolata, petiolo 3–10 mm. longo, lamina subchartacea, elliptica vel obovata, 3–5.5 cm. longa, 1.7–3.3 cm. lata, apice abrupte acuta vel acuminata, basi rotundata, margine subintegra, supra parce stellato-pilosa, subtus albido-stellato-tomentosa. Inflorescentiae bisexuales, ad 11.5 cm. longae, stellato-tomentosae. Flores ♀ subsessiles; calyce ca. 4.5 mm. diam., lobis anguste triangularibus, ad 2 mm. longis; ovario stellato-hirsuto; stylis 3, fere ad basim partitis. Flores ♂ pedicellati; staminibus 15 vel 16. Capsula 7 mm. longa, stellato-tomentosa.

A shrub; branchlets slender, white stellate tomentose. Petioles tomentose, 3 to 10 mm. long, not glandular at apex. Leaf blades subchartaceous, elliptic or obovate, 3 to 5.5 cm. long, 1.7 to 3.3 cm. wide, apex abruptly acute or acuminate, base rounded, margin minutely and obscurely denticulate, sparsely stellate-pilose on upper surface with stalked hairs, white stellate-tomentose on undersurface with spreading stalked hairs, base subtriplinerved, costa and veins usually subimmersed above, primary veins 4 or 5 on each side. Inflorescences bisexual, up to 11.5 cm. long, stel-

late-tomentose. Pistillate flowers solitary, few, borne on basal third of rachis, subsessile, apetalous; calyx about 4.5 mm. in diameter, 5- or 6-lobed, the lobes unequal, narrowly triangular, up to 2 mm. long, stellate-pubescent; ovary densely stellate-hirsute; styles 3, bilobed nearly to the base, about 3.2 mm. long. Staminate flowers usually in glomerules of 3, pedicellate, the pedicels up to 3.5 mm. long; calyx lobes stellate-pubescent, ovate-elliptic, 2 mm. long; petals spatulate, about 2.2 mm. long, ciliate below the middle; stamens 15 or 16, filaments glabrous. Capsules 7 mm. long, stellate-tomentose.

Mexico: Chiapas, between Mazapa and Motozintla, altitude 1200 m., July 19, 1941, *Eizi Matuda 4834* (type in the University of Michigan Herbarium).

The species is allied to *C. rhamnifolius* H.B.K.

Croton pendens Lundell, sp. nov.—Frutex, ramulis novellis stellato-tomentosis. Stipulae setaceae, ad 3 mm. longae. Folia petiolata, petiolo 4–11 mm. longo, lamina subchartacea, oblongo-lanceolata vel oblonga, 3–6.5 cm. longa, 1–2.4 cm. lata, apice acuta vel subacuminata, basi rotundata, supra hirtella, subtus stellato-tomentosa. Inflorescentiae bisexuales, ad 16 cm. longae, stellato-tomentosae. Flores ♀ sessiles vel subsessiles; calyce ca. 6 mm. diam., lobis 10, ad 2 mm. longis, margine glandulosis; ovario stellato-tomentoso; stylis 3, bipartitis, ca. 2.5 mm. longis. Flores ♂ pedicellati; staminibus 14–16, filamentis hirsutis.

A shrub, 2 m. high; branchlets slender, at first stellate-tomentose. Stipules setaceous, up to 3 mm. long. Petioles stellate-tomentose, 4 to 11 mm. long. Leaf blades subchartaceous, dark green above, pale beneath, oblong-lanceolate or oblong, 3 to 6.5 cm. long, 1 to 2.4 cm. wide, apex acute or subacuminate, base rounded, margin essentially entire, hirtellous on upper surface with simple and stellate hairs, stellate-tomentose on undersurface with spreading hairs, pinnately veined, costa and veins impressed above, primary veins 5 to 7 on each side. Inflorescences bisexual, slender, pendent, up to 16 cm. long, interrupted, the pistillate portion usually separated from the staminate by a long sterile portion. Pistillate flowers solitary, few, scattered, sessile or subsessile,

apetalous; calyx stellate-tomentose, 6 mm. in diameter, 10-lobed, the lobes unequal, the inner ovate, 2 mm. long, the outer smaller, lanceolate to subsetaceous, often bearing lobes at the base, the margins of the lobes bearing short stipitate glands; ovary stellate-tomentose; styles 3, lobed twice, about 2.5 mm. long. Staminate flowers solitary, stellate-tomentose, with intermixed blackish hairs, pedicellate, the pedicels up to 3.5 mm. long; calyx 3 mm. long, the 5 lobes ovate-lanceolate; petals 5, oblanceolate, 3 mm. long, sericeous, hirsute within with purplish hairs, receptacle and filaments hirsute with purplish hairs, stamens 14 to 16.

Mexico: Chiapas, Honduras, near Siltepec, altitude 1500 m., in second growth, July 9, 1941, *Eizi Matuda 4373* (type in the University of Michigan Herbarium).

C. pendens belongs to the section Decalobium, in which it is probably nearest *C. decalobus* Muell. Arg. The small acute or subacuminate leaves rounded at base, the stipules only 3 mm. long, the long slender interrupted pendent inflorescences, and the pistillate calyx only 2 mm. long distinguish the species. *C. Standleyanus* Croizat is an allied species also, but it could not be confused with *C. pendens.*

Croton platyphyllus Lundell, sp. nov.—Frutex, ramulis crassis, farinoso-stellato-tomentosis. Folia petiolata, petiolo 7–13 cm. longo, lamina membranacea vel subchartacea, late ovata, 7–16 cm. longa, 6–14.5 cm. lata, apice abrupte cuspidato-acuminata, basi cordata, margine irregulariter denticulata, supra parce farinosa, subtus dense stellato-pilosa, venis 7–9-jugis, basi quinquenervis. Inflorescentiae ♂ ca. 27 cm. longae; pedicelli ad 7 mm. longi; calyce 2.5 mm. longo, lobis ovatis; staminibus 16, filamentis villosis.

A shrub; branchlets stout, stellate-tomentose, farinose. Petioles farinose, subequaling leaf blades, 7 to 13 cm. long. Leaf blades membranaceous or subchartaceous, broadly ovate, 7 to 16 cm. long, 6 to 14.5 cm. wide, apex abruptly cuspidate-acuminate, the acumen up to 1.3 cm. long, base cordate, the sinus broad, the lobes rounded, base conspicuously 5-nerved, primary veins 7 to 9 on each side, prominent on undersurface, with age sparsely fari-

nose above, the indument of fine stellate hairs, at first tomentose beneath, farinose, at length stellate-pilose, the margin irregularly denticulate. Staminate inflorescence about 27 cm. long, stellate-tomentose, farinose; flowers in glomerules; pedicels slender, up to 7 mm. long; calyx about 2.5 mm. long, stellate-tomentellous, the lobes 5, ovate; petals 5, oblanceolate, about 2.5 mm. long, lanate, villous at base within; receptacle villous; stamens 16, filaments villous to above middle.

MEXICO: Chiapas, Siltepec, Jan., 1937, *Eizi Matuda 282* (type in the University of Michigan Herbarium).

The species approaches *C. tacanensis* Lundell, but differs in having larger cordate leaves and pedicels of staminate flowers up to 7 mm. long. In *C. tacanensis* the pedicels do not exceed 3 mm.

Croton siltepecensis Lundell, sp. nov.—Arbor parva, 3 m. alta, ramulis novellis stellato-tomentellis. Stipulae minutae. Folia petiolata, petiolo 1–2 cm. longo, apice biglanduloso, lamina subchartacea, ovata vel ovato-lanceolata, 2.5–6.5 cm. longa, 1.3–3.6 cm. lata, apice abrupte subacuminata vel acuta, basi rotundata, supra stellato-pubescentia, subtus farinoso-tomentosa, margine minute serrulata, venis 5- vel 6-jugis, primo jugo subtriplinervio. Flores dioecii. Inflorescentiae ♂ ad 16 cm. longae; pedicelli ad 3.3 mm. longi; calyce 2 mm. longo, lobis ovatis; staminibus 17 vel 18.

A small tree, 3 m. high; branchlets at first stellate-tomentellous, the indument minute, somewhat farinose; branches reddish, glabrate. Stipules minute, entire. Petioles tomentellous, 1 to 2 cm. long, bearing 2 conspicuous stipitate glands at apex on upper surface. Leaf blades subchartaceous, ovate or ovate-lanceolate, 2.5 to 6.5 cm. long, 1.3 to 3.6 cm. wide, apex abruptly subacuminate or acute, base rounded, finely stellate-pubescent on the upper surface, stellate-tomentose on the undersurface, the indument tawny, somewhat farinose, base subtriplinerved, the primary veins 5 or 6 on each side, subimpressed on upper surface, the margin minutely serrulate. Flowers dioecious. Staminate inflorescences stellate-tomentellous, the rachis angled, up to 16 cm. long, the flowers in glomerules, crowded; pedicels up to 3.3 mm. long; calyx tomentellous, 2 mm. long, the 5 lobes ovate; petals spatulate,

about 2.4 mm. long, villous within, glabrous outside; receptacle villous; stamens 17 or 18, filaments villous at base.

MEXICO: Chiapas, Letrero, near Siltepec, altitude 2000 m., in second growth, July 6, 1941, *Eizi Matuda 4329* (type in the University of Michigan Herbarium).

Another collection from the same locality, *Matuda 4331*, is in fruit. Although the leaves are obtuse rather than rounded at the base and the indument is not as dense, the material undoubtedly belongs to this species. The rachis of the inflorescence in *Matuda 4331* is conspicuously angled, up to 23 cm. long, bearing scattered fruits on pedicels up to 2.5 mm. long. The capsules are sparsely stellate-tomentellous and somewhat farinose, about 7 mm. long

Croton vitifolius Lundell, sp. nov.—Frutex, ramulis novellis stellato-tomentosis. Folia longe petiolata, membranacea, rugulosa, ovata vel rhombico-ovata, 4.5–19 cm. longa, 3.5–14 cm. lata, apice acuminata, basi cordata, margine irregulariter dentata, supra parce hirsuta, subtus albido-stellato-tomentosa. Inflorescentiae bisexuales, ad 12 cm. longae, stellato-tomentosae. Flores ♀ sessiles; calyce ca. 3 mm. diam., lobis triangularibus, 1–1.2 mm. longis; ovario stellato-hirsuto, stylis 3, ad basim partitis. Flores ♂ pedicellati; staminibus 14–16.

A shrub, 1 to 2 m. high; branchlets rather slender, at first stellate-tomentose with coarse hairs. Petioles stellate-tomentose, sparsely hairy with age, 1 to 5.5 cm. long. Leaf blades membranaceous, green above and rugulose, ovate or rhombic-ovate, 4.5 to 19 cm. long, 3.5 to 14 cm. wide, apex acuminate, base cordate, irregularly dentate, rarely subtrilobate, upper surface sparsely hirsute, the hairs simple and stellate, undersurface densely white tomentose with spreading stellate hairs, usually 3- sometimes 5-nerved at base, costa and veins impressed above, conspicuous beneath, the primary lateral veins 5 to 7 on each side, the glands at the apex of the petiole on upper surface minute. Inflorescences spicate, terminal, up to 12 cm. long, the rachis slender, stellate-tomentose, bisexual; the pistillate flowers solitary, sessile, crowded at the base of the spike; staminate flowers in glomerules above the pistillate, the pedicels up to 2.2 mm. long. Pistillate flowers

apetalous, the calyx stellate-hirsute, about 3 mm. in diameter, the 5 lobes narrowly triangular, 1 to 1.2 mm. long; ovary densely stellate-hispid; styles 3, each bilobed to the base, about 5 mm. long. Staminate flowers stellate-pubescent, the calyx lobes lanceolate, about 2.2 mm. long; petals oblanceolate, about 3 mm. long, the basal half ciliate; stamens 14 to 16, filaments glabrous. Capsules sparsely stellate-hairy.

Mexico: Chiapas, between Mazapa and Motozintla, altitude 1200 m., in meadows, July 19, 1941, *Eizi Matuda 4832* (type in the University of Michigan Herbarium), a shrub, 1 to 2 m. high; Honduras, near Siltepec, altitude 1500 m., in second growth, July 9, 1941, *Matuda 4391*, a shrub, 2 m. high; same locality, habitat, and date, *Matuda 4410*, a shrub, 1 to 2 m. high; between Mazapa and Motozintla, altitude 1200 m., in second growth, July 19, 1941, *Matuda 4833*, a shrub.

Phyllanthus heterotrichus Lundell, sp. nov.—Frutex, ramulis gracilibus, heterotrichus, pilosis et puberulis. Folia petiolata, chartacea, lanceolata vel elliptico-lanceolata, 5.5–9.5 cm. longa, 2–3.5 cm. lata, apice acuminata, basi rotundata. Flores ♀ solitarii, axillares. Pedicelli fructiferi 7–8 mm. longi, puberuli. Capsula glabra, reticulata, ca. 1.1 cm. longa.

A shrub; branchlets slender, pilose and finely puberulent. Petioles terete, rugose, pilose, 2 to 3 mm. long. Leaf blades concolorous, thinly chartaceous, lanceolate or elliptic-lanceolate, 5.5 to 9.5 cm. long, 2 to 3.5 cm. wide, apex acuminate, base rounded, often slightly emarginate, pilose along the costa on both surfaces and at base on underside, glabrous otherwise, costa plane above, elevated beneath, primary veins slender, 10 or 11 on each side, veinlets inconspicuously reticulate. Pistillate flowers solitary in the leaf axils. Pedicels 7 to 8 mm. long, jointed below the middle, puberulent. Capsules (immature) glabrous, reticulate veined, about 1.1 cm. long.

Mexico: San Luis Potosí, Tamazunchale, Aug. 15, 1939, *L. A. Kenoyer s. n.* (type in the University of Michigan Herbarium).

Only fruiting material is available, but the species is well characterized by the lanceolate leaves usually emarginate at base, by

the two layered pubescence of the stems, and by the solitary axillary capsules borne on puberulent pedicels jointed below the middle.

Ilex Liebmannii Standl., *Field Mus. Bot.*, 8: 315. 1931.

A tree, 7 to 10 m. high; branchlets slender, somewhat angled, puberulent at first, drying blackish. Petioles canaliculate, puberulent above, 5 to 10 mm. long. Leaf blades coriaceous or subcoriaceous, drying blackish, paler beneath, lanceolate, 4 to 9 cm. long, 1.4 to 2.5 cm. wide, apex attenuate, acuminate or caudate-acuminate, base acute, appressed-serrulate, the few teeth spinulose and remote, at first puberulent above along the costa, entirely glabrous otherwise, lustrous on the upper surface, the veins shallowly immersed or plane, costa prominent on undersurface, primary veins conspicuous, 8 to 10 on each side. Inflorescence cymose, usually 3-flowered, solitary, usually axillary, rarely corymbose-paniculate and terminal; peduncles slender, puberulent at first, up to 1.5 cm. long; pedicels slender, puberulent at first, 4 to 8 mm. long. Flowers 4- or 5- or 6-parted. Calyx about 2 mm. in diameter, the lobes broadly triangular-ovate, about 0.5 mm. long. Corolla glabrous, 2.2 to 2.5 mm. long, united at base into a tube half as long as the lobes, the lobes ovate-oblong, rounded at apex. Stamens borne at base of sinuses, shorter than corolla lobes, probably abortive. Ovary glabrous 4- or 5- or 6-celled; stigma capitate, sessile.

Mexico: Chiapas, Letrero, near Siltepec, altitude 2000 m., in virgin forest, July 6, 1941, *Eizi Matuda 4361*. Veracruz, Petlapa, June, 1841 *eu* 43, *F. M. Liebmann 14927* (type in the herbarium of Field Museum).

The Chiapas collection, apparently the first outside of Veracruz, matches the type very closely. However, the flowers are 5- or 6-parted. In *Liebmann 14927*, which has been examined by the writer, the flowers usually are 4-, rarely 5-parted. Since this characteristic appears to be variable in the species, and no other differences are apparent, *Matuda 4361* obviously is referable here. On the basis of the ample Matuda material, the tree is redescribed.

Mappia longipes Lundell, sp.nov.—Frutex, ramulis strigillosis. Folia longe petiolata, petiolo 1.4–3.7 cm. longo, lamina membranacea, glabra, anguste oblanceolata, 10–19 cm. longa, 3-5 cm. lata, apice subabrupte caudato-acuminata, basi attenuata, acuta. Inflorescentiae axillares, cymoso-paniculatae, ad 12.5 cm. longae, strigillosae. Flores 5-, raro 4- vel 6-meri. Calyx ca. 1.4 mm. longus, 5-denticulatus. Corolla glabra, 5 mm. longa. Filamenta glabra, 3 mm. longa. Antherae 1.5 mm. longae. Ovarium parce strigillosum.

A shrub; branchlets rather slender, at first strigillose. Petioles long and slender, flat or shallowly canaliculate above, strigose at first, 1.4 to 3.7 cm. long. Leaf blades membranaceous, drying blackish, narrowly oblanceolate, 10 to 19 cm. long, 3 to 5 cm. wide, apex subabruptly caudate-acuminate, base attenuate, acute, glabrous except for a few appressed hairs on the costa on undersurface, domatia prominent in the axils of the primary veins, costa slightly impressed above, prominent beneath, primary veins 9 to 12 on each side, conspicuous on undersurface, the veinlets laxly reticulate. Inflorescences axillary, cymose-paniculate, up to 12.5 cm. long including peduncle up to 9 cm. long, strigillose; pedicels short, up to 2 mm. long. Flowers usually 5-, rarely 4- or 6-parted. Calyx strigillose, jointed at base, cupulate, scarcely 1.4 mm. long, 5-dentate, the teeth acute. Corolla glabrous, 5 mm. long, the petals hooked within at apex. Filaments glabrous, 3 mm. long. Anthers 1.5 mm. long, apiculate. Disk shallowly lobed, about 0.4 mm. high. Ovary ellipsoid, about 1.2 mm. long, with a few appressed hairs, 1-celled, with 2 ovules. Style stout, about 0.35 mm. long. Stigma capitate.

Mexico: Chiapas, Nuevo Amatenango, altitude 1300 m., July 17, 1941, *Eizi Matuda 4798* (type in the University of Michigan Herbarium).

The slender caudate-acuminate oblanceolate leaves with petioles up to 3.7 cm. long, and the large inflorescences characterize *M. longipes*. *M. mexicana* Rob. & Greenm., the only other species known from Mexico and northern Central America, differs notably in leaf form and flower size. The relationship of *M. longipes* is with *M. racemosa* Jacq. of the West Indies.

Triumfetta Matudai Lundell, sp. nov.—Frutex, ramulis parce stellato-hispidulus. Folia longe petiolata, membranacea, vel subchartacea, suborbicularis vel rhombica, ad 25 cm. longa, 23 cm. lata, 3- vel 5-lobata, bidentata, basi cordata, 7- vel 9-nervia, supra hispida et stellato-hispidula, subtus adpresse stellato-pilosa et parce stellato-hispidula. Inflorescentiae cymoso-paniculatae, ad 20 cm. longae et latae, stellato-puberulae. Pedicelli ad 5 mm. longi. Alabastra 3.5–5 mm. longa. Sepala lineari-lanceolata, ca. 6.5 mm. longa. Petala lineari-oblanceolata, ca. 5 mm. longa. Stamina ca. 38.

A shrub, 2 m. high; branchlets angled, sulcate, sparsely stellate-hispidulous. Petioles up to 12 cm. long. Leaf blades membranaceous or subchartaceous, suborbicular or rhombic, up to 25 cm. long, 23 cm. wide, usually about 15 cm. long, 14 cm. wide, 3- or 5-lobate, the lobes triangular, the terminal one caudate-acuminate, the lateral short acuminate, acute, or rounded, the margin bidentate, base cordate, 7- or 9-nerved, hispid on upper surface with simple hairs and sparsely stellate-hispidulous, appressed stellate-pilose beneath and sparsely stellate-hispidulous. Inflorescence leafy, borne at ends of the stems, cymose-paniculate, up to 20 cm. long and wide, many-flowered, densely stellate-puberulent. Pedicels up to 5 mm. long, jointed above the base. Buds sparsely stellate-puberulent with appressed hairs, 3.5 to 5 mm. long, clavate or subpyriform, slightly constricted below the middle, the apical appendages scarcely evident. Sepals linear-oblanceolate, about 6.5 mm. long, apex acute. Petals linear-oblanceolate, about 5 mm. long, barbate and ciliate above base. Androphore about 0.7 mm. long, bearing 5 elliptical glands, the apical annulus ciliolate. Stamens about 38, filaments glabrous, the largest about 5 mm. long. Style scarcely 1 mm. long.

Mexico: Chiapas, Escuintla, Nov. to Dec., 1937, *Eizi Matuda 2148* (type in the University of Michigan Herbarium).

T. Matudai is allied to *T. heliocarpoides* Bullock. Differences in the indument and flowers amply distinguish it.

Saurauia Matudai Lundell, sp. nov.—Arbor, ramulis crassis, paleaceis. Folia petiolata, petiolo setoso-paleaceo, lamina char-

tacea, obovato-oblonga, 10–22 cm. longa, 4.5–9.5 cm. lata, apice abrupte acuminata, basi rotundata vel raro obtusiuscula, biserrata, nervis medio et lateralibus setoso-paleaceis. Paniculae ad 13 cm. longae, setoso-paleaceae. Flores pedicellati, 1.5–1.8 cm. diam. Sepala setosa, ovato-orbicularia, ca. 5 mm. longa, ciliata. Petala obovata, ca. 1 cm. longa. Stamina 15 vel 16. Ovarium glabrum.

A tree, 7 m. high; branchlets stout, densely paleaceous, the indument matted, reddish brown, over 1 cm. long. Petioles stout, setose-paleaceous, up to 5 cm. long. Leaf blades chartaceous, obovate-oblong, 10 to 22 cm. long, 4.5 to 9.5 cm. wide, apex abruptly subulate-acuminate, the acumen less than 1 cm. long, base usually rounded and inaequilateral, rarely obtusish, margin biserrate, the teeth slender, setose-paleaceous above along the costa and beneath along the costa and primary veins, glabrous otherwise, costa and veins prominent on undersurface, primary veins 14 to 17 on each side. Panicles usually large, setose-paleaceous, up to 13 cm. long. Bracts linear, with setose margin. Pedicels setose. Flowers white, 1.5 to 1.8 cm. in diameter. Calyx setose, the sepals ovate-orbicular, about 5 mm. long, the overlapped margins ciliate. Petals united at base, obovate, about 1 cm. long, often emarginate. Receptacle pilose. Stamens 15 or 16. Ovary glabrous, apparently abortive.

Mexico: Chiapas, Letrero, near Siltepec, altitude 2000 m., in advanced forest, July 6, 1941, *Eizi Matuda 4339* (type in the University of Michigan Herbarium).

S. Matudai, apparently close to *S. Conzattii* Busc., is remarkable for its dense chaffy indument.

Calyptranthes chiapensis Lundell, sp. nov.—Arbor parva, ramulis crassiusculis, novellis ferrugineo-tomentosis. Folia petiolata, petiolo crasso ad 6 mm. longo, lamina coriacea, lanceolata vel lanceolato-oblonga, 16–24 cm. longa, 4.5–8 cm. lata, apice subattenuata, acuminata, acumine acuto vel obtusiusculo, basi cordata. Infructescentiae cymoso-paniculatae, ad 15 cm. longae, ferrugineo-tomentosae. Bacca depresso-globosa, ad 1.5 cm. diam.

A tree, 7 to 10 m. high; branchlets rather stout, terete, slightly compressed at the nodes, at first ferruginous-tomentose. Petioles

very short but evident, stout, up to 6 mm. long, at first ferruginous-tomentose. Leaf blades coriaceous, probably ferruginous-tomentose at first, entirely glabrous at maturity except for a few rusty hairs along the costa on undersurface, lanceolate or lanceolate-oblong, 16 to 24 cm. long, 4.5 to 8 cm. wide, apex subattenuate, acuminate, the acumen often obtusish, base cordate and clasping, the sinus closed by the overlapping basal lobes. Costa slightly immersed above, prominent beneath, primary lateral veins conspicuous on undersurface, 23 to 33 on each side, secondary veins evident. Infructescences pyramidal, cymose-paniculate, up to 15 cm. long, with long peduncles, ferruginous-tomentose at first, bracts at base foliaceous. Fruits sessile or borne on short pedicels, depressed-globose, up to 1.5 cm. in diameter, with some persistent rusty hairs even at maturity.

MEXICO: Chiapas, Chicomuselo, altitude 800 m., riverside, *Eizi Matuda 4488* (type in the University of Michigan Herbarium).

The species obviously approaches *C. Bartlettii* Standl. of British Honduras, a riparian shrub smaller in all parts. The large oblongish leaves prominently veined on the undersurface and deeply cordate at base with overlapping lobes, the distinct although short petioles, and the ample infructescences characterize *C. chiapensis*.

Calyptranthes perlaevigata Lundell, sp. nov.—Arbor parva, 3 m. alta, glabra, ramulis gracillimis. Folia petiolata, petiolo crasso, 4–7 mm. longo, lamina laevigata, supra lucida, chartacea vel subcoriacea, elliptica vel lanceolato-elliptica, 7.5–13.5 cm. longa, 3.5–5.5 cm. lata, apice subabrupte acuminata, acumine obtusiusculo, basi acutiuscula. Inflorescentiae ad 5.7 cm. longae. Pedunculi angulati, crassiusculi. Flores sessiles vel subsessiles. Fructus (immaturus) globosus, ca. 1 cm. diam.

A small tree, 3 m. high, entirely glabrous; branchlets dichotomous, slender, smooth, rigid, terete, the first internode slightly compressed and sulcate above the middle. Petioles thick, canaliculate, 4 to 7 mm. long. Leaf blades very smooth, lucid above, chartaceous or subcoriaceous, slightly paler beneath, elliptic or lanceolate-elliptic, 7.5 to 13.5 cm. long, 3.5 to 5.5 cm. wide, apex

subabruptly acuminate, the acumen obtusish, base acutish, decurrent, costa slightly impressed above, prominent beneath, primary veins 14 to 16 on each side, very slender, scarcely evident on the upper surface. Inflorescence erect, rigid, 1.5 to 5.7 cm. long, the flowers few, sessile or subsessile, born at apex of peduncle, the peduncle flattened on one side and sharply angled. Immature fruits globose, about 1 cm. in diameter; the persistent calyptrate calyx about 4 mm. in diameter.

MEXICO: Chiapas, Honduras, near Siltepec, altitude 1500 m., riverside, July 9, 1941, *Eizi Matuda 4387* (type in the University of Michigan Herbarium).

The smooth comparatively large lustrous leaves with thick petioles, and the rigid erect angled peduncles flattened on one side well mark the species.

Eugenia Bartlettiana Lundell, sp. nov.—Arbor parva, ramulis minute puberulis. Folia petiolata, petiolo minute puberulo, lamina chartacea, glabra, oblongo-elliptica vel elliptica, 4–9 cm. longa, 2.5–5 cm. lata, apice subabrupte subacuminata, acumine obtuso, basi acuta. Inflorescentiae axillares, racemosae, minute puberulae, rachidibus ad 12 mm. longis. Pedicelli 2–5 mm. longi. Petala elliptica, 3 mm. longa, parce ciliolata.

A small tree, about 4 m. high, 5 cm. in diameter; branchlets slender, reddish brown, compressed at the nodes, very minutely puberulent; branches thick, terete. Petioles subterete, sparsely and very minutely puberulent, 6 to 9 mm. long. Leaf blades chartaceous, paler beneath, very minutely puberulent along costa, appearing entirely glabrous, oblong-elliptic or elliptic, 4 to 9 cm. long, 2.5 to 5 cm. wide, apex subabruptly short acuminate, the acumen obtuse, base acute, costa plane or slightly impressed above, prominent beneath, primary veins 7 to 9 on each side, prominulous, veinlets rather laxly reticulate on undersurface. Inflorescence axillary, racemose, the racemes fasciculate, the rachis up to 12 mm. long, densely puberulent with minute hairs. Pedicels slender, puberulent, 2 to 5 mm. long. Bractlets at apex of pedicels free, ovate, scarcely 0.4 mm. long, puberulent. Calyx very minutely puberulent; tube about 1.2 mm. long; lobes 4,

subequal, suborbicular, 1 to 1.5 mm. long, ciliolate. Petals 4, elliptic, 3 mm. long, sparsely ciliolate. Stamens up to 4 mm. long.

British Honduras: Belize District, Belize-Sibun River road, 1931–32, *Percy H. Gentle 47* (type in the University of Michigan Herbarium), a small tree, about 4 m. high, 5 cm. in diameter, flowers white.

Eugenia bracteolosa Lundell, sp. nov.—Arbor parva, ramulis crassiusculis, glabris. Folia petiolata, chartacea, glabra, oblongo-elliptica vel lanceolato-oblonga, 5–11 cm. longa, 1.3–5.5 cm. lata, apice subabrupte acuminata, acumine raro obtusiusculo, basi acuta. Inflorescentiae axillares, racemosae, densiflorae, rachidibus crassis ad 12 mm. longis, bracteolis ad 1.4 mm. longis. Pedicelli glabri, 3–7 mm. longi. Petala elliptica, 4 mm. longa, ciliolata. Fructus globosus.

A small tree; branchlets rather stout, erect, glabrous, compressed at the nodes; branches terete, whitish. Petioles canaliculate, 7 to 11 mm. long. Leaf blades chartaceous, slightly paler beneath, nearly concolorous, glabrous, oblong-elliptic or lanceolate-oblong, 5 to 11 cm. long, 1.3 to 5.5 cm. wide, apex subabruptly acuminate, the acumen sometimes obtusish, base acute, costa plane or slightly impressed above, prominent beneath, primary veins 6 to 9 on each side, prominulous, veinlets laxly reticulate. Inflorescence axillary, racemose, the racemes fasciculate; the rachis stout, up to 12 mm. long, glabrous; the bracteoles conspicuous, up to 1.4 mm. long, sparsely puberulent. Pedicels 3 to 7 mm. long, glabrous. Bractlets at apex of pedicel united, subcupular, 1 to 1.2 mm. long. Calyx glabrous; tube about 1.2 mm. long; lobes 4, subequal, depressed ovate-orbicular, 1 to 1.3 mm. long, ciliolate. Petals elliptic, 4 mm. long, sparsely ciliolate. Immature fruits globose.

British Honduras: El Cayo District, Little Cocquericot on the Belize River, April 21, 1933, *C. L. Lundell 4316* (type in the University of Michigan Herbarium); same locality and date, *Lundell 4318*. Mexico: Tabasco, Reforma on the San Pedro de Mártir River, May 22 to 26, 1939, *Eizi Matuda 3194*, a tree, 13 m. high, 20 cm. in diameter.

Lundell 4328 from Little Cocquericot appears to be referable here also; leaves of this collection are smaller and considerably narrower than those of the type.

Eugenia campechiana Lundell, sp. nov.—Arbor parva, ramulis glabris. Folia petiolata, glabra, chartacea, obovato-elliptica, oblongo-elliptica, vel elliptica, 5–10 cm. longa, 2.5–5 cm. lata, apice abrupte subacuminata, acumine obtuso, basi acuta. Inflorescentiae axillares, racemosae, puberulae, rachidibus 2–11 mm. longis. Pedicelli minute puberuli, ad 7 mm. longi. Petala elliptica vel obovato-elliptica, 4–4.5 mm. longa, parce ciliolata. Fructus globosus, ca. 1 cm. diam.

A small tree, 3 to 4 m. high; branchlets usually short, slender, glabrous, subcompressed at the nodes. Petioles canaliculate, glabrous, rather slender, 8 to 11 mm. long. Leaf blades glabrous, concolorous, yellow-green, chartaceous, obovate-elliptic, oblong-elliptic, or elliptic, 5 to 10 cm. long, 2.5 to 5 cm. wide, apex abruptly short acuminate, the acumen obtuse, base acute, costa plane or inconspicuously impressed above, prominent beneath, primary veins 7 or 8 on each side, prominulous, veinlets laxly reticulate. Inflorescence axillary, racemose, the racemes fasciculate, puberulent, the rachis 2 to 11 mm. long. Pedicels slender, minutely puberulent, up to 7 mm. long. Calyx glabrous; tube 1.2 mm. long; lobes 4, unequal, broadly rounded or depressed ovate-orbicular, 0.5 to 1 mm. long, ciliolate. Petals elliptic or obovate-elliptic, 4 to 4.5 mm. long, sparsely ciliolate. Fruits globose, smooth, about 1 cm. in diameter.

Mexico: Campeche, lake side at Palizada, July 25 to 28, 1939, *Eizi Matuda 3832* (type in the University of Michigan Herbarium), a small tree, 3 to 4 m. high, flowers white; same locality and date, *Matuda 3847*, vernacular name, *boroconte*.

The fruits are said to be edible.

Eugenia capulioides Lundell, sp. nov.—Arbor parva, glabra. Folia petiolata, chartacea, lanceolata vel oblongo-lanceolata, 3.5–9 cm. longa, 1–2.6 cm. lata, apice attenuata, acuminata, acumine obtuso, ad 2 cm. longo, basi acuta vel subacuminata.

Inflorescentiae axillares, racemosae, ad 11 mm. longae. Pedicelli 2–3.5 mm. longi. Petala ad 3 mm. longa.

A small tree, glabrous throughout; branchlets slender, wiry, erect, terete, not conspicuously compressed at the nodes. Petioles slender, canaliculate, 2.5 to 5 mm. long. Leaf blades chartaceous, concolorous, lanceolate or oblong-lanceolate, 3.5 to 9 cm. long, 1 to 2.6 cm. wide, apex attenuate, the acumen obtuse, up to 2 cm. long, base acute or subacuminate, costa and veins evident on both surfaces, reticulate, the primary veins 6 or 7 on each side. Inflorescences racemose, axillary, solitary or geminate, up to 11 mm. long, sessile; bracts minute, ciliolate. Pedicels slender, 2 to 3.5 mm. long. Bractlets at apex of pedicels minute, free. Calyx glabrous; tube 0.6 to 1 mm. long; lobes 4, unequal, depressed-orbicular, 0.5 to 1 mm. long. Petals up to 3 mm. long. Stamens numerous.

Mexico: Chiapas, Malpaso, near Siltepec, altitude 1000 m., in advanced forest, July 21, 1941, *Eizi Matuda 4521* (type in the University of Michigan Herbarium); Nuevo Amatenango, altitude 1300 m., July 17, 1941, *Matuda 4759.*

Although closely resembling *E. Capuli* (Schl. & Cham.) Berg., the attenuate obtusely acuminate larger leaves, the longer racemes, and the shorter pedicels of *E. capulioides* separate the two species.

Eugenia citroides Lundell, sp. nov.—Frutex, ramulis novellis adpresse rufo-tomentosis. Folia petiolata, petiolo 3–5 mm. longo, lamina chartacea vel subcoriacea, elliptica vel obovato-elliptica, 4.5–8.5 cm. longa, 2.3–4.8 cm. lata, apice abrupte subacuminata, acumine obtusa, basi acuta. Flores fasciculati vel breviter racemosi, pedicellis fructiferis crassis 1–3 mm. longis. Fructus magnus subglobosus. Sepala ad apicem fructus persistentia ad 2 mm. longa.

A shrub, 3 m. high; branchlets rather slender, brownish, becoming almost white with age, at first appressed rufous-tomentose, glabrate. Leaves apparently appressed rufous-tomentose at first, almost glabrous with age; petioles canaliculate, 3 to 5 mm. long. Leaf blades chartaceous or subcoriaceous, yellow-green, slightly

paler beneath, elliptic or obovate-elliptic, 4.5 to 8.5 cm. long, 2.3 to 4.8 cm. wide, apex usually abruptly subacuminate, the acumen obtuse, sometimes only obtusish, base acute, venation conspicuous and reticulate on both surfaces, subbullate, costa impressed above, prominent beneath, primary veins 5 to 8 on each side, prominent on undersurface. Flowers fasciculate or borne in very short racemes, the rachis scarcely evident. Pedicels of fruits stout, 1 to 3 mm. long. Fruits (immature) subglobose, up to 1.4 cm. long, glabrous, conspicuously glandular-punctate, with exudation from the glands. Persistent calyx lobes unequal, rounded, up to 2 mm. long.

Mexico: Chiapas, Ventana, near Siltepec, altitude 2100 m., in advanced forest, July 25, 1941, *Eizi Matuda 4554* (type in the University of Michigan Herbarium).

Eugenia sibunensis Lundell, sp. nov.—Arbor parva, ramulis glabris. Folia petiolata, glabra, chartacea, lanceolata vel anguste oblongo-elliptica, 6–9.5 cm. longa, 1.6–4 cm. lata, apice acuminata, acumine obtusiusculo, basi acuta. Inflorescentiae axillares, racemosae, rachidibus ad 1 cm. longis. Pedicelli glabri, 5–10 mm. longi. Petala obovato-elliptica, ca. 4 mm. longa.

A small tree, up to 10 cm. in diameter; branchlets glabrous, usually slender, tan, compressed somewhat at nodes, straight; branches terete, whitish. Petioles shallowly canaliculate, 7 to 10 mm. long. Leaf blades chartaceous, concolorous, glabrous, lanceolate or narrowly oblong-elliptic, 6 to 9.5 cm. long, 1.6 to 4 cm. wide, apex acuminate, the acumen obtusish, base acute, costa slightly impressed above, prominent beneath, primary veins 7 to 9 on each side, prominulous beneath, less conspicuous above, veinlets laxly reticulate on undersurface. Inflorescence axillary, racemose, the racemes fasciculate; rachis up to 1 cm. long, glabrous or very sparsely puberulent. Pedicels glabrous, slender, 5 to 10 mm. long. Bractlets at apex of pedicel united at base, 0.3 to 0.4 mm. long. Calyx glabrous; tube 1 mm. long; lobes 4, unequal, depressed orbicular, 0.7 to 1 mm. long, ciliolate. Petals obovate-elliptic, about 4 mm. long. Immature fruits globose.

British Honduras: Belize District, Gracie Rock, on bank of

the Sibun River, April 27, 1935, *Percy H. Gentle 1619* (type in the University of Michigan Herbarium), a tree, 7.5 cm. in diameter, flowers white; same locality, May 29, 1935, *Gentle 1669*, a tree, 10 cm. in diameter.

Psidium yucatanense Lundell, sp. nov.—Arbor, ramulis puberulis. Folia petiolata, petiolo 1.5–3 mm. longo, puberulo, lamina membranacea vel subchartacea, lanceolata, ovato-lanceolata vel ovata, 2–5.5 cm. longa, 8–18 mm. lata, apice caudato-acuminata vel acuminata, basi acuta vel acutiuscula. Flores albi. Pedunculi axillares ad 1.5 cm. longi, 1-flori. Alabastra ante anthesin piriformia, ca. 4 mm. longa, basi puberula. Petala ciliata, ca. 3.5 mm. longa. Stamina numerosa, ad 7 mm. longa.

A tree, trunk 15 cm. in diameter, smooth, almost white; branchlets slender, terete, slightly compressed at the nodes, minutely puberulent, reddish punctate. Petioles slender, puberulent, 1.5 to 3 mm. long. Leaf blades membranaceous or subchartaceous, sparsely puberulent along midvein at first, otherwise glabrous, lanceolate, ovate-lanceolate or ovate, 2 to 5.5 cm. long, 8 to 18 mm. wide, apex caudate-acuminate or acuminate, base acute or acutish, costa nearly plane above, conspicuous beneath, primary veins very slender, inconspicuous, 6 to 8 on each side. Flowers white, axillary, solitary; the peduncles minutely puberulent, up to 1.5 cm. long, bearing a pair of bractlets at apex, the bractlets setaceous, about 1 mm. long, puberulent, deciduous. Flower buds pyriform, constricted at apex of calyx tube, about 4 mm. long. Calyx calyptrate, the basal part rupturing into vertical lobes at anthesis; calyx tube puberulent, the lobes glabrous outside, puberulent within. Petals ciliate, about 3.5 mm. long. Stamens numerous, up to 7 mm. long. Apex of ovary and base of style pilose; style up to 5 mm. long.

British Honduras: Belize District, Belize-Sibun Road, 1931–32, *Percy H. Gentle 9* (type in the University of Michigan Herbarium), vernacular name, *half-crown*. Mexico: Yucatán, in forest, June 13, 1932, *W. C. Steere 1293*, a shrub, vernacular name, *pichiche*.

The species has been confused with *P. Sartorianum* (Berg)

Ndzu., which it superficially resembles. The calyx of *P. yucatanense* is calyptrate, and the basal part above the ovary splits into five irregular lobes at anthesis. In *P. Sartorianum* the base of the calyx remains entire, the flower buds are fully 6 mm. long, and the indument is altogether different.

Ardisia (*Walleniopsis*) **Austin-Smithii** Lundell, sp. nov.—Frutex glaber, ramulis gracilibus. Folia petiolata, petiolo marginato, ad 5 mm. longo, lamina chartacea, oblanceolata, 2.5–6.7 cm. longa, 1–2.1 cm. lata, apice obtusa vel subacuminata, acumine obtuso, basi attenuata, margine integra. Inflorescentiae terminales, ad 2 cm. longae. Flores umbellati. Pedicelli 2.5–5.5 mm. longi. Sepala parce lepidota, ovata, ca. 1.6 mm. longa, acuta vel obtusa, erosa. Corolla 3.5–4.2 mm. longa, lepidota, staminibus petala aequantibus vel excedentibus. Antherae ca. 0.5 mm. longae. Ovarium cum stylo glabrum.

A glabrous shrub, scarcely 2 m. high, 3.5 cm. in diameter, bark brownish; branchlets slender, the internodes short. Petioles marginate, up to 5 mm. long. Leaf blades chartaceous, oblanceolate, 2.5 to 6.7 cm. long, 1 to 2.1 cm. wide, apex obtuse or subacuminate, the acumen obtuse, base attenuate, decurrent, costa slightly impressed above, prominent beneath, the primary veins very slender, prominulous on both surfaces, margin entire. Inflorescence terminal, small, up to 2 cm. long, rachis and branches stout, crowded, the flowers umbellate; bracts thin, foliaceous, obovate, up to 7 mm. long, erose, deciduous. Pedicels 2.5 to 5.5 mm. long. Calyx sparsely lepidote; sepals ovate, about 1.6 mm. long, acute or obtuse, erose, sparsely orange punctate. Corolla lepidote, 3.5 to 4.2 mm. long; petals valvate, narrowly triangular-lanceolate, apex rounded, united at base into a tube about 1.2 mm. long, sparsely orange punctate. Stamens exserted, slightly longer than the petals; anthers minute, about 0.5 mm. long, minutely apiculate. Ovary and style glabrous; style exserted, 4 mm. long.

Costa Rica: Palmira, altitude about 2100 m., in subtropical zone, Dec. 9, 1937, *Austin Smith A673* (type in the University of Michigan Herbarium).

A. Austin-Smithii approaches *A. tacanensis* Lundell of Chiapas.

The smaller entire obtuse leaves, reduced inflorescences, and different corollas amply distinguish it from that species.

The collection was distributed as *A. minor* Standl., a species known to the writer only from the incomplete original description. Mr. Paul C. Standley places *A. minor* in the subgenus Icacorea near *A. compressa* H.B.K. *A. Austin-Smithii* is far removed from the *A. compressa* complex.

Ardisia (*Graphardisia*) **Bartlettii** Lundell, sp. nov.—Frutex glaber. Folia petiolata, petiolo 5–11 mm. longo, lamina chartacea, lanceolata vel oblongo-lanceolata, 6–12.5 cm. longa, 1.8–4.3 cm. lata, apice acuminata, acumine raro obtusiusculo, basi acuta, punctata, integra. Inflorescentiae terminales, corymbosae. Pedicelli ca. 1 cm. longi. Sepala ovata, 2 mm. longa, obtusa, punctata, margine erosula. Corolla 7–8 mm. longa, punctata. Filamenta 1.2 mm. longa. Antherae 4 mm. longae. Ovarium glabrum.

A glabrous shrub about 2 m. high; branchlets slender, terete, black punctate. Petioles glabrous, slender, slightly marginate, canaliculate, 5 to 11 mm. long. Leaf blades glabrous, membranaceous at first, chartaceous with age, lanceolate or oblong-lanceolate, 6 to 12.5 cm. long, 1.8 to 4.3 cm. wide, apex acuminate, the acumen rarely obtusish, base acute, finely but densely black punctate, the margin essentially entire, costa conspicuous on both surfaces, primary veins very slender and scarcely discernible, about 20 on each side, not evident with age. Inflorescences terminal, sessile or short pedunculate, small, usually about half as long as the leaves, the flowers corymbose, subracemose in fruit. Bracts leafy, lanceolate, ciliolate. Pedicels of flowers slender, about 1 cm. long, slightly enlarged at apex, accrescent, becoming 1.5 cm. long in fruit. Calyx sparsely lepidote outside, densely punctate; sepals 5, ovate, 2 mm. long, obtuse, glandular-lepidote within at base, the margin scarious, minutely erose. Corolla glandular-lepidote within at base, 7 to 8 mm. long, the tube less than 2 mm. long, the lobes elliptic or ovate-elliptic, densely punctate, margin scarious, apex obtuse or rounded, obliquely emarginate. Filaments stout, about 1.2 mm. long. Anthers 4 mm. long, dehiscent by apical pores, concolorous.

Ovary ovoid, glabrous; style 4 mm. long. Immature fruits globose, inconspicuously costate, about 5 mm. in diameter.

PANAMA: Canal Zone, Barro Colorado Island, Gatun Lake, along Wm. Morton Wheeler Trail, Aug. 8, 1940, *H. H. Bartlett and T. Lasser 16720* (type in the University of Michigan Herbarium), flowers and fruits pink.

A. Bartlettii, obviously allied to *A. Seibertii* Standl. and *A. opegrapha* Oerst., differs conspicuously from these species in having sepals only 2 mm. long. The small lanceolate leaves without evident lateral venation at maturity are noteworthy. From description, *A. stenophylla* Donn. Sm. may be allied also; its linear-oblanceolate leaves with fewer lateral veins, shorter petioles, lanceolate longer sepals, acute petals, and anthers 5 mm. long apparently distinguish it from *A. Bartlettii*.

Ardisia (*Icacorea*) **belizensis** Lundell, sp. nov.—Arbor parva, ramulis furfuraceo-lepidotis. Folia petiolata, petiolo marginato, furfuraceo-lepidoto, 5–10 mm. longo, lamina membranacea, elliptica vel oblongo-elliptica, 10.5–17 cm. longa, 4.3–7.5 cm. lata, apice abrupte acuminata, basi acutiuscula, margine integra, parce furfuraceo-lepidota. Inflorescentiae terminales, ad 12 cm. longae, furfuraceo-lepidotae. Flores subumbellati. Pedicelli ad 9 mm. longi. Sepala 5, ovato-oblonga, ca. 1.5 mm. longa, punctata. Petala parce punctata, elliptica vel oblongo-elliptica. Filamenta glabra, ca. 1.5 mm. longa. Antherae 3 mm. longae. Ovarium cum stylo glabrum.

A small tree, up to 15 cm. in diameter; branchlets rather slender, at first furfuraceous-lepidote. Petioles marginate to base, densely furfuraceous-lepidote on lower surface, 5 to 10 mm. long. Leaf blades membranaceous, somewhat paler beneath, elliptic or oblong-elliptic, 10.5 to 17 cm. long, 4.3 to 7.5 cm. wide, apex abruptly short acuminate, the acumen up to 1 cm. long, base acutish, decurrent, margin entire, sparsely furfuraceous-lepidote on undersurface, costa nearly plane above, prominent beneath, primary veins slender, 12 to 17 on each side, prominulous on undersurface. Inflorescence terminal, pyramidal, up to 12 cm. long, the rachis and branches slender, open, lax, furfuraceous

lepidote. Flowers subumbellate. Pedicels slender, up to 9 mm. long. Calyx punctate, 2 to 2.4 mm. long; sepals 5, ovate-oblong, about 1.5 mm. long, margin hyaline, minutely ciliolate or denticulate. Corolla about 5.5 mm. long, sparsely punctate; petals elliptic or oblong-elliptic, united at base about 1.2 mm. Filaments glabrous, about 1.5 mm. long. Anthers linear, 3 mm. long, dehiscent by apical pores. Ovary and style glabrous, the style about 5 mm. long, filiform.

British Honduras: Stann Creek District, Stann Creek Valley, Big Eddy Ridge, in high ridge, Jan. 25, 1941, *Percy H. Gentle 3500* (type in the University of Michigan Herbarium), a tree, 15 cm. in diameter, flowers white, vernacular name, *male blossom berry grape;* Antelope Ridge, in mountain cabbage ridge, creek side, Jan. 28, 1940, *Gentle 3178*, a treelet, about 5 cm. in diameter, flowers white.

The furfuraceous-lepidote indument, large membranaceous entire elliptic leaves, lax pyramidal inflorescences up to 12 cm. long, and the slender comparatively long pedicels mark the species. Although its affinity is with *A. compressa* H.B.K., the two may be readily separated by the differences in the indument and leaves.

Ardisia (*Icacorea*) **costaricensis** Lundell, sp. nov.—Arbor parva, ramulis furfuraceo-lepidotis. Folia petiolata, petiolo marginato, 3–5 mm. longo, lamina subcoriacea, parce furfuraceo-lepidota, anguste oblongo-elliptica, 3.5–6.5 cm. longa, 1.3–2 cm. lata, apice acuminata, acumine obtuso, basi attenuata, margine integra. Inflorescentiae terminales, ad 8 cm. longae. Flores umbellati. Pedicelli 6–8 mm. longi. Sepala late ovata, 1.2–1.4 mm. longa, punctata, apice rotundata. Corolla ca. 6.5 mm. longa; petala anguste elliptico-oblonga, punctata. Filamenta 3–3.5 mm. longa. Antherae 3 mm. longae. Ovarium cum stylo glabrum.

A small tree, about 3 m. high, 10 cm. in diameter, bark gray, cambium pink; branchlets slender, furfuraceous-lepidote, the internodes very short. Petioles marginate to base, furfuraceous-lepidote, 3 to 5 mm. long. Leaf blades subcoriaceous at maturity, paler beneath, sparsely furfuraceous-lepidote, narrowly oblong-

elliptic, 3.5 to 6.5 cm. long, 1.3 to 2 cm. wide, apex acuminate, the acumen obtuse, base attenuate, decurrent, margin entire, costa nearly plane above, conspicuous on undersurface, primary veins very slender, 10 to 12 on each side, scarcely prominulous beneath. Inflorescence large, terminal, many-flowered, up to 8 cm. long and wide, very sparsely lepidote, the flowers umbellate. Pedicels 6 to 8 mm. long, dark crimson, straight, rigid. Calyx sparsely lepidote, punctate, 2 to 2.4 mm. long; sepals broadly ovate, 1.2 to 1.4 mm. long, rounded at apex, very minutely ciliolate, closed after anthesis. Corolla about 6.5 mm. long; petals narrowly elliptic-oblong, obtuse or rounded, punctate, united about 1.5 mm. at base. Stamens about 6 mm. long; filaments slender, 3 to 3.5 mm. long; anthers 3 mm. long, apically dehiscent through pores. Ovary glabrous, slightly rugose; style glabrous, up to 7.5 mm. long.

COSTA RICA: Palmira, altitude about 2000 m., in subtropical zone, Oct. 12, 1937, *Austin Smith A503* (type in the University of Michigan Herbarium).

A. costaricensis is a member of the *A. compressa* H.B.K. complex. The furfuraceous-lepidote indument, small oblong-elliptic leaves with short marginate petioles, the ample inflorescences, the rigid pedicels, and the large flowers with exceptionally long filaments and styles are the noteworthy characteristics of the species.

Ardisia (*Icacorea*) **subcrenulata** Lundell, sp. nov.—Frutex, ramulis furfuraceo-lepidotis. Folia petiolata, petiolo marginato, furfuraceo-lepidoto, 3–5 mm. longo, lamina parce lepidota, membranacea vel subchartacea, ovato-elliptica vel elliptica, 5–10 cm. longa, 3–5.5 cm. lata, apice obtusa vel late subacuminata, acumine obtuso, basi acutiuscula, margine crenulata vel subintegra. Inflorescentiae terminales, furfuraceo-lepidotae, ad 6.5 cm. longae. Flores subumbellati. Pedicelli ad 7 mm. longi. Sepala punctata, ovata, ca. 1.8 mm. longa, obtusa. Corolla punctata, petala oblongo-elliptica. Filamenta glabra. Antherae ca. 3 mm. longae. Ovarium cum stylo glabrum.

A shrub, scarcely 2 m. high; branchlets rather slender, at first

minutely furfuraceous-lepidote. Petioles marginate to base, densely furfuraceous-lepidote, 3 to 5 mm. long. Leaf blades sparsely lepidote, membranaceous or subchartaceous, paler beneath, ovate-elliptic or elliptic, 5 to 10 cm. long, 3 to 5.5 cm. wide, apex obtuse or widely subacuminate, the acumen obtuse, base acutish, decurrent, margin crenulate or subentire, costa essentially plane above, prominent beneath, primary veins prominulous, 8 to 10 on each side, veinlets reticulate on undersurface. Inflorescence terminal, furfuraceous-lepidote, pyramidal, up to 6.5 cm. long; bracts thin, small, deciduous early; flowers subumbellate. Pedicels slender, straight, up to 7 mm. long. Flower buds before anthesis about 5.5 mm. long. Calyx sparsely lepidote, densely punctate, about 2.2 mm. long; sepals 5, rarely 6, ovate, about 1.8 mm. long, obtuse, the margin hyaline, very minutely ciliolate. Corolla punctate; petals oblong-elliptic, united at base. Filaments glabrous, short. Anthers at least 3 mm. long, evidently dehiscent by apical pores. Ovary and style glabrous.

Costa Rica: Zarcero, altitude about 1500 m., in shade in wooded ravine, Aug. 17, 1937, *Austin Smith A171* (type in the University of Michigan Herbarium), inflorescence creamy white.

Although not too well marked and obviously allied to *A. irazuensis* Oerst., the ovate-elliptic or elliptic crenulate leaves and the furfuraceous-lepidote indument segregate the species. No fully developed flowers are available.

Parathesis leptopa Lundell, sp. nov.—Arbor parva, ramulis crassiusculis, angulatis, ferrugineo-tomentellis. Folia longe petiolata, membranacea vel subchartacea, supra glabra, subtus ferrugineo-tomentella, lanceolato-elliptica, 6–17 cm. longa, 2.2–5.7 cm. lata, apice acuminata, basi attenuata, acuta, integra, raro crenulata. Inflorescentiae axillares, paniculatae, ad 17.5 cm. longae, ferrugineo-tomentellae. Pedicelli 5–6.5 mm. longi. Sepala anguste triangularia, 1.3–1.5 mm. longa, punctata. Petala tomentalla, anguste triangularia, ca. 7 mm. longa, punctata. Stamina 4–4.5 mm. longa. Ovarium cum stylo tomentellum.

A small tree, 3 m. high; branchlets rather stout, angled, ferruginous-tomentellous. Petioles canaliculate, 1.5 to 3 cm. long,

ferruginous-tomentellous. Leaf blades membranaceous or subchartaceous, glabrous above, ferruginous-tomentellous beneath with fine closely appressed stellate hairs, the indument becoming sparse with age, conspicuously black punctate, lanceolate-elliptic, 6 to 17 cm. long, 2.2 to 5.7 cm. wide, apex acuminate, base attenuate, acute, decurrent, margin usually entire, sometimes crenulate, costa slightly impressed above, prominent on undersurface, primary veins 19 to 26 on each side, slender. Inflorescences axillary, paniculate, many-flowered, up to 17.5 cm. long including peduncle up to 7 cm. long, ferruginous-tomentellous, the hairs stellate, appressed. Pedicels slender, 5 to 6.5 mm. long. Flower buds at anthesis about 6 mm. long. Sepals 1.3 to 1.5 mm. long, narrowly triangular, ferruginous-tomentellous, linear-punctate. Petals united at base, narrowly triangular, about 7 mm. long, tomentellous on both surfaces, linear-punctate. Stamens 4 to 4.5 mm. long; filaments glabrous, slightly exceeding anthers; anthers nearly concolorous, the dorsal side punctate with few small reddish black dots. Ovary and base of style tomentellous; style about 5 mm. long.

Mexico: Chiapas, Sierra Madre, Saxchanal, altitude 2700 m., in advanced forest, *Eizi Matuda 4297* (type in the University of Michigan Herbarium).

From *P. melanosticta* (Schl.) Hemsl., which it approaches, *P. leptopa* differs in having much longer petioles, different indument, and larger flowers. On some branches of *P. leptopa* the inflorescences are essentially terminal leafy panicles. All the allied species have strictly axillary inflorescences.

Parathesis macrantha Lundell, sp. nov.—Frutex, ramulis crassis, juventate minute adpresse tomentellis mox glabratis. Folia longe petiolata, membranacea vel subchartacea, elliptica vel oblanceolato-elliptica, 6–12 cm. longa, 2.6–5 cm. lata, apice subabrupte acuminata, acumine obtusiusculo, basi subacuminata, glabrata, subintegra. Inflorescentiae axillares, corymboso-paniculatae, ad 16 cm. longae, minute tomentellae. Pedicelli 7–13 mm. longi. Sepala triangularia, 1.5–2 mm. longa, punctata, tomentella. Petala tomentella, punctata, triangulari-lanceolata, ad 9 mm.

longa. Filamenta glabra. Antherae 3 mm. longae, punctatae. Ovarium cum stylo tomentellum.

A shrub, bark gray and granular; branchlets stout, at first minutely appressed tomentellous, glabrescent early. Petioles slightly marginate, up to 1.7 cm. long. Leaf blades membranaceous or subchartaceous, elliptic or oblanceolate-elliptic, 6 to 12 cm. long, 2.6 to 5 cm. wide, apex subabruptly acuminate, the acumen obtusish, base subacuminate, decurrent, margin subentire, costa slightly impressed above, prominent beneath, primary veins 10 to 12 on each side, slender, prominulous on undersurface, obscurely subimpressed on upper surface, at first sparsely stellate lepidote beneath, glabrescent. Inflorescence axillary, corymbose-paniculate, large, up to 16 cm. long, laxly many-flowered, minutely puberulent, black punctate. Bracts lanceolate, obtuse, up to 3 mm. long, deciduous. Pedicels minutely puberulent, 7 to 13 mm. long. Flower buds about 7.8 mm. long. Calyx densely punctate, sepals triangular, 1.5 to 2 mm. long, acute. Petals only united at base, essentially free, densely glandular-puberulent or tomentellous on both surfaces, conspicuously punctate, triangular-lanceolate, up to 9 mm. long, acutish. Filaments glabrous, punctate, 2 mm. long. Anthers 3 mm. long, with a black punctate dorsal area, obtusely apiculate. Apex of ovary and base of style tomentellous; style about 5.5 mm. long, punctate.

Costa Rica: Palmira, altitude about 2000 m., in cloud forest, Aug. 30, 1937, *Austin Smith A253* (type in the University of Michigan Herbarium), branches of inflorescence and calyx crimson, corolla pink, anthers golden brown, style white.

P. macrantha is closely related to *P. venezuelana* Mez and *P. Storkii* Standl. The larger flowers, particularly the size of the anthers, separate the species immediately from both. From *P. venezuelana* it differs further in having fewer nerved leaves.

Dipholis Matudai (Lundell) Lundell, comb. nov. *Sideroxylon Matudai* Lundell, *Phytologia*, 1: 221. 1937.

A tree, 17 m. high, 50 cm. in diameter; branchlets rather stout, at first sericeous with matted ferruginous and silvery hairs, glabrous with age, the leaves crowded at apex. Petioles canaliculate,

sericeous, up to 2 cm. long. Leaf blades chartaceous, sericeous at first, glabrous above with age, obovate or oblanceolate, up to 20 cm. long, 7 cm. wide, apex bluntly obtuse or rounded, base acute, costa impressed above, prominent beneath, primary veins 14 to 19 on each side, plane above, prominent beneath, veinlets reticulate. Flowers fasciculate and crowded at the defoliated nodes, the pedicels slender, sericeous, up to 1 cm. long, accrescent. Calyx at first sparsely sericeous at base; sepals 5, subequal, coriaceous, ovate-orbicular, up to 2.7 mm. long. Corolla glabrous, 5 mm. long, the tube scarcely 2 mm. long, the 5 lobes 3-parted, the central segment elliptic, rounded at apex, cordate at base, the lateral segments smaller, dentate-laciniate, acuminate. Filaments adnate to base of central segment of corolla lobes, stout, the free part about 2.5 mm. long. Anthers sagittate, 2 mm. long. Staminodia 5, foliaceous, about 3.5 mm. long, laciniate, acuminate. Ovary glabrous, 5-celled. Style stout, short. Fruiting pedicels 1.3 to 1.8 cm. long. Fruits subglobose or ovoid, about 2 cm. long, glabrous, apiculate; seeds ovoid, about 1.8 cm. long, endosperm copious.

Mexico: Chiapas, Mt. Ovando, Dec. 16, 1936, *Eizi Matuda 571* (type in the University of Michigan Herbarium); same locality, in forest, altitude 900 m., July 1 to 16, 1940, *Matuda 4175*.

The species was originally described from fruiting material. The flowers, recently collected, have the corolla with lobes 3-parted; this characteristic and the albuminous seed necessitate the transfer to *Dipholis*.

Diospyros pergamentacea Lundell, sp. nov.—Arbor glabra. Folia petiolata, pergamentacea, ovato-lanceolata vel lanceolata, 5–14.5 cm. longa, 3–6 cm. lata, apice acuminata, acumine obtusiusculo, basi acuta. Pedicelli fructiferi crassi, 7–10 mm. longi. Calyx 5-lobatus, lobis lineari-oblongis, ad 2.7 cm. longis, 5–8 mm. latis, acutiusculis. Fructus depresso-globosus, ad 5 cm. diam., 3.5 cm. longus.

A tree, 10 m. high; buds strigose; entirely glabrous otherwise; branchlets slender. Petioles shallowly canaliculate above, 7 to 15 mm. long. Leaf blades pergamentaceous, slightly paler beneath,

ovate-lanceolate or lanceolate, 5 to 14.5 cm. long, 3 to 6 cm. wide, apex acuminate, the acumen obtusish, base acute, costa slightly impressed above, conspicuous beneath, the primary lateral veins slender, 7 to 9 on each side, veinlets laxly reticulate, glabrous. Fruiting pedicels thick, 7 to 10 mm. long. Calyx deeply 5-lobed, the lobes coriaceous, linear-oblong, up to 2.7 cm. long, 5 to 8 mm. wide, attenuate above the middle, acutish. Fruits depressed globose, up to 5 cm. in diameter, 3.5 cm. long, drying black.

MEXICO: Chiapas, Pico de Loro, near Escuintla, altitude 2200 m., in advanced forest, June 25, 1941, *Eizi Matuda 4278* (type in the University of Michigan Herbarium).

D. pergamentacea approaches *D. Conzattii* Standl., but differs in having much longer petioles, larger leaves with 7 to 9 lateral veins, and calyx lobes up to 2.7 cm. long. The fruits doubtless are edible.

DIOSPYROS YUCATANENSIS Lundell var. **longipedicellata** Lundell, var. nov.—A *D. yucatanensis* differt floribus ♀ majoribus; pedicellis usque ad 1.4 cm. longis.

An arborescent shrub, less conspicuously fulvous pubescent than the typical form of the species. Pistillate flowers solitary, axillary, borne on slender pedicels up to 1.4 cm. long. Calyx about 9 mm. long, the lobes acute or subacuminate. Corolla about 1.3 cm. long, the lobes oblong, acute, 5 mm. long, 2.2 mm. wide.

MEXICO: Yucatán, along Kaua road, east of Chichen Itzá, in advanced deciduous forest, June 11, 1938, *C. L. Lundell and Amelia A. Lundell 7509* (type in the University of Michigan Herbarium), an arborescent shrub, 3 m. high, 2.5 cm. in diameter; Chichen Itzá, in second growth, June 7, 1938, *Lundell and Lundell 7434*, an arborescent shrub, 5 m. high, 4 cm. in diameter, corolla white. Quintana Roo, east of Coba, in advanced deciduous forest, June 30, 1938, *Lundell and Lundell 7711*, a shrub or treelet, about 6 m. high, 5 cm. in diameter, vernacular name, *xuchuche*.

The variety approaches *D. spectabilis* Lundell.

Fraxinus chiapensis Lundell, sp. nov.—Arbor, ramulis glabris. Folia pinnata, petiolata; foliola 5, raro 3 vel 7, ovato-lanceolata,

lanceolata vel lanceolato-elliptica, 4–15 cm. longa, 2–6.5 cm. lata, apice caudato-acuminata, basi acuta, serrulata, subtus secus nervos primarios albido-pilosa, petiolulata, petiolulo 4–15 mm. longo. Infructescentiae axillares, ad 20 cm. longae. Pedicelli ad 6.5 mm. longi. Calyx cupulatus, plurifidus. Fructus (immaturus) lineari-oblanceolatus, ad 3 cm. longus, 4.5 mm. latus, emarginatus.

A tree, 20 m. high, 70 cm. in diameter; branchlets stout, somewhat compressed at the nodes, glabrous. Leaves pinnate; the petiole up to 8.5 cm. long, canaliculate, scarcely winged; the rachis canaliculate, sparsely puberulent at the nodes; leaflets usually 5, sometimes 3 or 7, ovate-lanceolate, lanceolate or lanceolate-elliptic, 4 to 15 cm. long, 2 to 6.5 cm. wide, apex caudate-acuminate, base acute, often inaequilateral, irregularly serrulate, sparsely puberulent above along the costa, inconspicuously short pilose on undersurface along the costa and in the axils of the primary veins, sparsely lepidote, glabrous otherwise, the costa immersed above, prominent on undersurface, the primary veins conspicuous, 10 to 15 on each side; petiolules of lateral leaflets slender, 4 to 15 mm. long, the petiolule of terminal leaflet up to 4.5 cm. long. Infructescences axillary, branching from the base, up to 20 cm. long, lax, the branches slender, compressed, wiry. Pedicels slender, up to 6.5 mm. long. Persistent calyx minute, cupulate, the teeth subulate tipped. Samaras (immature) linear-oblanceolate, up to 3 cm. long, 4.5 mm. wide, the wing much longer than the body, emarginate at apex, apiculate at first.

Mexico: Chiapas, Nuevo Amatenango, altitude 1300 m., riverside, July 17, 1941, *Eizi Matuda 4762* (type in the University of Michigan Herbarium).

F. Uhdei (Wenzig) Lingelsh., which is the closest ally, has sessile or subsessile smaller leaflets coarsely barbate beneath along the costa. The slender petiolules of *F. chiapensis* reach a length of 15 mm.

Mandevilla mollis Lundell, sp. nov.—Frutex scandens, ramulis novellis dense pubescentibus. Folia petiolata, petiolo ad 4 mm. longo, hirsuto, lamina membranacea, ovato-elliptica, oblongo-elliptica vel obovato-elliptica, 9–16 cm. longa, 4–9.5 cm. lata,

apice subabrupte acuminata, basi angustata et subcordata, supra parce hirtella, subtus molliter pilosa. Inflorescentiae racemosae, axillares, ad 18 cm. longae. Bracteae foliaceae. Pedicelli 1–2 cm. longi. Calyx pubescentibus, lobis oblanceolato-oblongis, ad 1.1 cm. longis, 5 mm. latis, ciliolatis. Corolla ad 3 cm. longa, lobis obovatis, ca. 1.2 cm. longis.

A suffrutescent vine; stems terete, at first densely pubescent. Leaves subsessile, the petioles up to 4 mm. long, hirsute; leaf blades membranaceous, ovate-elliptic, oblong-elliptic or obovate-elliptic, 9 to 16 cm. long, 4 to 9.5 cm. wide, apex subabruptly acuminate, base narrowed and shallowly cordate, sparsely hirtellous on upper surface and glandular at base of midrib, softly pilose on undersurface with white slightly incurved hairs, costa and primary veins conspicuous, primary veins 9 to 12 on each side. Racemes simple, axillary, up to 18 cm. long, hirsute, the flowers yellow. Bracts foliaceous, oblanceolate-oblong, up to 1.3 cm. long. Pedicels slender, 1 to 2 cm. long, sparsely hirtellous or puberulent. Calyx lobes conspicuous, subequal, oblanceolate-oblong, up to 1.1 cm. long, 5 mm. wide, acute, ciliolate, and sparsely pubescent, the squamellae numerous. Corolla salverform, the tube up to 1.8 cm. long, about 3 mm. in diameter at base, the lobes obliquely obovate, about 1.2 cm. long. Stamens inserted near the orifice of the corolla tube, the anthers 5 mm. long, basal auricles truncate. Nectaries subequaling the ovary. Ovary puberulent. Stigma about 3 mm. long, the two apical lobes subulate.

Mexico: Chiapas, Santa Rosa, near Escuintla, altitude 1600 m., in advanced forest, June 20, 1941, *Eizi Matuda 4240* (type in the University of Michigan Herbarium).

M. mollis approaches *M. platydactyla* Woodson. The conspicuous calyx lobes of *M. mollis* reach a length of 1.1 cm., compared with 6 mm. in *M. platydactyla*, and the corolla lobes are more than twice as large, reaching a length of 1.2 cm. These differences and the larger leaves amply distinguish *M. mollis*.

Rochefortia Lundellii W. H. Camp, sp. nov.—Frutex scandens. Folia fasciculata, petiolata, petiolo ad 1.2 cm. longo, lamina

chartacea, glabra, cuneato-obovata, 3–7 cm. longa, 1.5–3.1 cm. lata, apice obtusa, basi attenuata, margine integra. Inflorescentiae ad 2 cm. longae, pauciflorae. Sepala ciliata. Corolla glabra, ca. 3.2 mm. longa. Ovarium glabrum.

A woody vine, armed with short straight thorns up to 5 mm. long; branches rather slender, gray, inconspicuously striate. Leaves fascicled on short spurs; petioles slender, canaliculate, up to 1.2 cm. long, glabrous with age. Leaf blades chartaceous, glabrous, pallid, cuneate-obovate, 3 to 7 cm. long, 1.5 to 3.1 cm. wide, apex obtuse, base attenuate, margin entire, costa impressed above, prominent beneath, primary veins 5 to 7 on each side, slender, prominulous on undersurface, evident on upper surface and sometimes subimpressed. Inflorescence appressed pubescent, up to 2 cm. long, 2- to 6-flowered. Calyx sparsely appressed pubescent, the tube short; sepals 5, imbricate, ovate or suborbicular, 2 to 2.2 mm. long, subcordate at base, ciliate, slightly accrescent in fruit. Corolla glabrous, the tube cylindrical, about 1.1 mm. long; lobes reflexed, oblong-elliptic, about 2.1 mm. long, 1.4 mm. wide, rounded at apex. Stamens 5, alternate with the corolla lobes, inserted at apex of corolla tube. Filaments about 0.3 mm. long. Anthers oblong, about 0.65 mm. long. Ovary superior, glabrous, 4-celled, with 1 ovule in each cell. Fruits globose, shining, about 6 mm. in diameter (immature).

British Honduras: El Cayo District, Arenal-Valentin road, in high forest, June 20 and 21, 1936, *C. L. Lundell 6167* (type in the Britton Herbarium, New York Botanical Garden; duplicate in the University of Michigan Herbarium).

The species seems to be most closely related to *R. cuneata* Sw. of Martinique, Guadeloupe, and Montserrat, but differs in being a vine rather than a shrub or small tree. Further, *R. Lundellii* has fewer flowers per inflorescence, obtuse obovate rather than retuse mostly oval leaves, pubescent rather than glabrous inflorescences, and smaller flowers. The genus apparently has not been reported heretofore from continental America.

Solanum belizense Lundell, sp. nov.—Herba, ramulis gracilibus, parce adpresse pubescentibus. Folia pinnata, petiolata;

foliola 7 vel 9, lanceolata vel lineari-lanceolata, 2.5–6.5 cm. longa, 0.7–2 cm. lata, apice attenuata, acuminata, basi inaequalia, acuta, integra, utrinque dense subadpresse hirtella, petiolulis lateralibus ad 7 mm. longis. Inflorescentiae extra-axillares, racemosae, ad 15 cm. longae, ca. 13-florae. Pedicelli fructiferi ad 1.6 cm. longi. Calyx strigillosus, lobis ad 2 mm. longis. Corolla ca. 7 mm. longa, lobis acutis. Filamenta parce pubescentia. Antherae ca. 2.6 mm. longae. Bacca globosa.

An herb; branchlets slender, unarmed, sparsely pubescent, the hairs mostly appressed. Pseudostipules small. Leaves pinnate, petiolate, the rachis up to 11 cm. long; leaflets 7 or 9, usually with reduced leaflets interposed and at base, thin, lanceolate or linear-lanceolate, 2.5 to 6.5 cm. long, 0.7 to 2 cm. wide, apex attenuate, acuminate, base usually unequal, the sides acute, margin entire, slightly undulate, subappressed hirtellous above with interspersed coarser hairs, subappressed hirtellous beneath, the shorter hairs fine on both surfaces, costa elevated above as a narrow ridge, more conspicuous beneath, primary veins 5 to 7 on each side, prominulous on undersurface; petiolules of lateral leaflets slender, up to 7 mm. long. Inflorescences extra-axillary, lateral, long pedunculate, racemose, up to 15 cm. long, about 13-flowered. Pedicels jointed at base, up to 1.6 cm. long in fruit, thickened above, recurved. Calyx strigillose, the lobes unequal, linear-lanceolate or subulate, up to 2 mm. long, obtusish. Corolla sparsely strigillose, about 7 mm. long, the lobes triangular, the acute apex incurved. Stamens about 4.2 mm. long; filaments adhering to corolla at base, forming a tube, free only at apex, the free part sparsely hairy; anthers about 2.6 mm. long. Berries (immature) globose.

British Honduras: El Cayo District, near Vaca, on hill side, March 11, 1938, *Percy H. Gentle 2319* (type in the University of Michigan Herbarium).

S. belizense approaches *S. huastecanum* Lundell from which it differs in having longer more numerous leaflets acute at base, petiolules up to 7 mm. long, denser indument, and hairy filaments. In *S. huastecanum* the filaments are glabrous, and there are no interposed reduced leaflets between the lateral leaflets.

Both *S. belizense* and *S. huastecanum* are members of that small group of species to which *S. suaveolens* Kunth & Bouché belongs.

Solanum huastecanum Lundell, sp. nov.—Herba, ramulis gracilibus. Folia pinnata, petiolata; foliola 5 vel 7, lanceolata vel oblongo-lanceolata, 1–3.5 cm. longa, 0.4–1.4 cm. lata, apice acuminata, acumine acuto vel obtuso, basi inaequalia, rotundata et abrupte acutiuscula, integra, utrinque subadpresse hirtella, petiolulis lateralibus, 1–4 mm. longis. Inflorescentiae extra-axillares, racemosae vel subracemosae, ad 14.5 cm. longae, ca. 9-florae. Pedicelli ad 13 mm. longi. Calyx parce strigillosus, lobis ad 3 mm. longis. Corolla alba, parce strigillosa, ca. 7 mm. longa, lobis ca. 3 mm. longis. Filamenta glabra. Antherae ca. 2.6 mm. longae. Bacca globosa, ca. 2 cm. diam.

An herbaceous vine, decumbent; branches slender, sparsely pubescent at first with short appressed hairs, glabrescent with age. Pseudostipules small. Leaves pinnate, petiolate; leaflets 5 or 7, usually 7, with a pair of reduced leaflets at base of rachis, thin, lanceolate or oblong-lanceolate, 1 to 3.5 cm. long, 0.4 to 1.4 cm. wide, apex acuminate, the acumen acute or obtuse, base unequal, the sides usually rounded and abruptly acutish, margin entire, undulate, hirtellous on both surfaces, the hairs subappressed, costa elevated above as a narrow ridge, conspicuous beneath, primary veins slender, 5 or 6 on each side, prominulous on undersurface; petiolules of lateral leaflets 1 to 4 mm. long. Inflorescences extra-axillary, lateral and terminal, long and slender pedunculate, sparsely appressed hairy, racemose or subracemose, about 9-flowered, up to 14.5 cm. long in fruit, with a pair of pseudostipules at base of peduncles. Pedicels articulate at base, up to 13 mm. long, slightly thickened above. Calyx sparsely strigillose, the lobes linear-lanceolate or triangular, up to 3 mm. long, acute or obtuse. Corolla white, sparsely strigillose, about 7 mm. long, the lobes broadly triangular, about 3 mm. long, apex acute, incurved. Stamens about 4 mm. long; filaments united to above middle; anthers about 2.6 mm. long. Berries globose, about 2 cm. in diameter, edible.

Mexico: San Luis Potosí, Tamazunchale, altitude 200 m., on limestone cliff along roadside, July 13, 1937, *C. L. Lundell and*

Amelia A. Lundell 7206 (type in the University of Michigan Herbarium), vernacular name, *tomate cimarron.*

Russelia oxyphylla Lundell, sp. nov.—Herba, ramulis 6-costatis, parce pubescentibus. Folia ternata, membranacea, ovata vel lanceolato-ovata, 2.5–5 cm. longa, 1.6–2.8 cm. lata, apice acuminata, basi cuneata, margine dentata, resinoso-punctata, parce pubescenti. Pedicelli ad 8 mm. longi. Calyx resinoso-punctatus, lobis ovatis, 3.4–4.2 mm. longis, subulatis, ciliolatis. Corolla rubra, 1.2 cm. longa.

An herb; stems 6-ribbed, densely hairy at the nodes, sparsely pubescent to essentially glabrous otherwise, the basal internode of the ultimate branchlets flattened on the inner side. Leaves ternate, sessile or subsessile, membranaceous, ovate to lanceolate-ovate, 2.5 to 5 cm. long, 1.6 to 2.8 cm. wide, apex acuminate, base sharply but broadly cuneate, margin above the cuneate base deeply dentate-serrate, the lateral teeth up to 4 mm. long, costa and primary veins subimpressed above, conspicuous beneath, the primary veins 5 or 6 on each side, veinlets reticulate, conspicuously resinous-punctate on undersurface and sparsely pubescent with short hairs along the veins and margin, sparsely pubescent above with short hairs, these conspicuous along the midvein and margin only. Peduncles solitary, axillary, few-flowered, 4-ribbed, 3 to 6 mm. long. Bractlets linear-lanceolate or linear, the lower up to 5 mm. long, hirtellous. Pedicels slender, sparsely resinous-punctate, up to 8 mm. long. Calyx resinous-punctate; lobes ovate subequal, 3.4 to 4.2 mm. long, apex subulate, ciliolate, base subcordate or rounded. Corolla red, tubular, 1.2 cm. long, glabrous outside, sparsely short barbate within at base, the apical two-thirds of lower side of tube long barbate; 4-lobed, the emarginate upper lobe 2.3 mm. long, the three lower lobes oblong-elliptic, 3 mm. long, rounded at apex. Stamens didymous, the shorter filaments 6 mm. long, the longer 7 mm. long, staminode about 4 mm. long.

PANAMA: Canal Zone, Forest Reserve, near crossing of Cruces Trail and Madden Dam Road, June 29, 1940, *H. H. Bartlett and T. Lasser 16349* (type in the University of Michigan Herbarium).

R. oxyphylla, which has affinity to *R. verticillata* H.B.K., is noteworthy for its acuminate sessile or subsessile leaves con-

spicuously cuneate at base and prominently dentate-serrate with narrow teeth.

Onohualcoa Lundell, gen. nov. *Bignoniacearum.*—Frutex scandens. Rami teretes. Folia bifoliolata vel trifoliolata. Inflorescentiae axillares vel terminales, anguste thyrsoideae. Calyx tubulato-campanulatus, costatus, subverrucosus, 5-dentatus. Corolla hypocrateriformia. Stamina inclusa. Ovarium glandulosolepidotum. Capsula clavata, dense tuberculato-verrucosa.

Large tendrilled woody vines; stems terete, verrucose, the nodes with interpetiolar ridges. Leaves bifoliolate or trifoliolate, the tendrils trifid. Inflorescence a narrow terminal or axillary thyrse, with some of the lateral flowers of the cymes not developing to maturity; bracts large, deciduous early. Flowers pinkish lavender to deep violet. Calyx tubular-campanulate, with 5 conspicuous longitudinal ribs terminating in subulate teeth up to 2 mm. long, secondary ribs extending to above the middle, subverrucose, glandular-lepidote. Corolla hypocrateriform, large, pubescent. Stamens included. Anthers glabrous. Disk conspicuous, cupular. Ovary glandular-lepidote. Fruits capsular, clavate, thick, woody, terete, conspicuously and densely tuberculate-verrucose, septicidally dehiscent. Seeds with membranaceous wings.

Type species, *Onohualcoa Seleri* (Loes.) Lundell.

The species was referred with doubt to *Adenocalymma* by R. J. Seibert (*Carnegie Inst. Wash. Publ.*, 522: 429. 1940). *Onohualcoa* is distinguished from *Adenocalymma* by its trifid tendrils, costate subulate-toothed subverrucose calyx, pinkish lavender to deep violet corollas, and terete clavate tuberculate-verrucose capsules. The calyx and capsule peculiarities differentiate *Onohualcoa* from all the other genera in the family.

In ancient times, during the age of Quetzalcoatl, the region now included in Yucatán, Campeche, and Tabasco was known as Onohualco, the name the genus commemorates.

Onohualcoa Seleri (Loes.) Lundell, comb. nov. *Adenocalymma Seleri* Loes., *Verh. Bot. Ver. Brand.*, 65: 101. 1923. *A. fissum* Loes., *Verh. Bot. Ver. Brand.*, 65: 102. 1923.

MEXICO: Yucatán, along the Pisté-Yokdzonoot road, in low second growth, May to Aug., 1938, *C. L. Lundell and Amelia A. Lundell 7865*, a woody vine, about 5 m. high. Campeche, Juarez, along fence, March 21, 1932, *C. L. Lundell 1424*, a large woody vine. GUATEMALA: Department of Petén, Uaxactun, April 17, 1931, *H. H. Bartlett 12567*, a vine about 6.5 cm. in diameter, flowers deep violet.

Although *A. Seleri* and *A. fissum* were described in the same publication, the former has priority of position, and therefore must be accepted as the valid name for the species.

Chiococca filipes Lundell, sp. nov.—Arbor, 7–10 m. alta, 35 cm. diam., glabra; ramulis gracilibus. Stipulae 2 mm. longae. Folia petiolata, petiolo 5–11 mm. longo, lamina chartacea, lanceolata, 5.5–11 cm. longa, 1.8–3.8 cm. lata, apice attenuata, acuminata, basi acuta. Inflorescentiae paniculatae, ad 9 cm. longae. Pedicelli ad 1.3 cm. longi. Calyx dentatus, dentibus triangularibus acutis. Corolla ca. 9.5 mm. longa. Filamenta villosa. Antherae 3.6–4 mm. longae. Fructus compressus.

A tree, 7 to 10 m. high, 35 cm. in diameter, entirely glabrous; branchlets slender, terete, erect with elongate internodes. Stipules 2 mm. long, subulate tipped, the base broad. Petioles slender, canaliculate, 5 to 11 mm. long. Leaf blades chartaceous, slightly paler beneath, lanceolate, 5.5 to 11 cm. long, 1.8 to 3.8 cm. wide, apex attenuate, acuminate, base acute, decurrent, costa plane above, prominent on undersurface, primary veins 5 to 7 on each side, slender, scarcely evident above, prominulous on undersurface. Inflorescence paniculate, up to 9 cm. long, the peduncle and branchlets very slender, almost filiform; bracts setaceous or linear, with lateral lobes at base, up to 4 mm. long, persistent. Pedicels filiform, up to 1.3 cm. long. Calyx and hypanthium about 3 mm. long, the calyx shorter than the hypanthium, the teeth triangular, acute, about 0.7 mm. long. Corolla about 9.5 cm. long, glabrous outside, sparsely pubescent within at base, the throat 5 mm. in diameter, the lobes triangular-ovate, about 3.5 mm. long, obtuse. Stamens included; filaments

villous, 2 mm. long; anthers 3.6 to 4 mm. long. Fruits (immature) strongly compressed.

Mexico: Chiapas, Nuevo Amatenango, altitude 1300 m., July 17, 1941, *Eizi Matuda 4783* (type in the University of Michigan Herbarium).

The species is remarkable for its size and for its laxly paniculate inflorescence with long filiform branchlets and pedicels. Most of the species of *Chiococca* are small shrubs or woody vines.

Rondeletia aprica Lundell, sp. nov.—Arbor parva, ramulis novellis strigosis. Folia petiolata, glabra, subcoriacea, elliptica vel oblanceolato-elliptica, 3.5–8 cm. longa, 1.2–3.5 cm. lata, apice subacuminata, acumine obtuso, vel obtusa, basi acuta. Inflorescentiae cymoso-corymbosae, strigillosae. Pedicelli ad 2 mm. longi. Hypanthium ca. 1 mm. longum, strigillosum, calyce strigilloso, lobis ca. 1 mm. longis. Corolla rosea extus strigillosa, tubo 6 mm. longo, intus hirsuto et barbato, lobis ovatis, 2 mm. longis, acutis.

A tree, 5 m. high; branchlets slender, subterete, slightly compressed at the nodes, strigose at first. Stipules deltoid, up to 8 mm. long. Leaves opposite; petioles rather stout, strigose, 2.5 to 4.5 mm. long; leaf blades subcoriaceous, narrowly elliptic or oblanceolate-elliptic, 3.5 to 8 cm. long, 1.2 to 3.5 cm. wide, apex obtusely subacuminate or obtuse, base acute, subcuneate, costa and primary veins plane or shallowly immersed above, conspicuous beneath, primary veins 5 or 6 on each side. Inflorescences usually terminal, sometimes axillary, cymose-corymbose, dense, up to 5 cm. wide, strigillose. Pedicels strigillose, up to 2 mm. long. Bracts small. Hypanthium strigillose, about 1 mm. long. Calyx lobes 5, deltoid, scarcely 1 mm. long, strigillose. Corolla pink, strigillose outside, the tube 6 mm. long, hirsute within, the throat yellow barbate, the 5 lobes ovate, 2 mm. long, acutish. Immature capsules globose, strigillose.

Mexico: Chiapas, Sierra Madre, Saxchanal, in open sunny places, July 1, 1941, *Eizi Matuda 4314* (type in the University of Michigan Herbarium).

R. aprica belongs to the group Amoenae in which it appears to be nearest *R. gratissima* (Linden) Hemsl.

INDEX

(*Synonyms in italics*)

Acrodiclidium, 3, 12
  campechianum, 12
  lucidum, 12
  triandrum, 12
Adenocalymma, 52
  fissum, 52, 53
  Seleri, 3, 52, 53
Ardisia, 36
  Austin-Smithii, 36, 37
  Bartlettii, 37, 38
  belizensis, 38
  compressa, 37, 39, 40
  costaricensis, 39, 40
  irazuensis, 41
  minor, 37
  opegrapha, 38
  Seibertii, 38
  stenophylla, 38
  subcrenulata, 40
  tacanensis, 36

Bignoniaceae, 3
Boroconte, 32

Calyptranthes, 28
  Bartlettii, 29
  chiapensis, 28, 29
  perlaevigata, 29
Chiococca filipes, 53
Coccoloba, 8
  belizensis, 9
  fluviatilis, 8
  Jurgenseni, 8
  Matudai, 8, 9
  mayana, 8
Cojoba, 15, 16
Croton, 18
  chiapensis, 18, 19
  decalobus, 21
  mazapensis, 19
  pendens, 20, 21
  platyphyllus, 21
  rhamnifolius, 19, 20
  siltepecensis, 22
  Standleyanus, 21
  tacanensis, 22
  vitifolius, 23

Diospyros, 44
  Conzattii, 45
  pergamentacea, 44, 45
  spectabilis, 45
  yucatanensis longipedicellata, 45
Dipholis, 3, 44
  Matudai, 43

Eugenia, 30
  Bartlettiana, 30
  bracteolosa, 31
  campechiana, 32
  Capuli, 33
  capulioides, 32, 33
  citroides, 33
  sibunensis, 34

Ficus, 6
  chiapensis, 6
  involuta, 7
Fraxinus, 45
  chiapensis, 45, 46
  Uhdei, 46

Half-crown, 35

Icacorea, 37–40
Ilex Liebmannii, 25

Laurus triandra, 12
Licaria triandra, 3

Male blossom berry grape, 39
Mandevilla, 46
  mollis, 46, 47
  platydactyla, 47
Mappia, 26
  longipes, 26
  mexicana, 26
  racemosa, 26
Myrica, 6
  cerifera, 6
  Holdridgeana, 5, 6

Neea, 9
  belizensis, 9, 10
  chiapensis, 11

choriophylla, 10
psychotrioides, 10
stenophylla, 10
turbinata, 10

Onohualco, 52
Onohualcoa, 3, 52
Seleri, 52

Parathesis, 41
leptopa, 41, 42
macrantha, 42, 43
melanosticta, 42
Storkii, 43
venezuelana, 43
Persea Chamissonis, 12, 13
Phoebe, 13
acuminatissima, 14
areolata, 13, 14
chiapensis, 14
saxhanalensis, 14
Phyllanthus heterotrichus, 24
Pichiche, 35
Picramnia, 17
locuples, 17
pistaciaefolia, 17, 18
velutina, 17, 18
Pithecolobium, 15
escuintlense, 15, 16
graciliflorum, 16
Matudai, 17
siltepecense, 16, 17
sophorocarpum, 16
Prunus guatemalensis, 14
Psidium, 35
Sartorianum, 35, 36
yucatanense, 35, 36

Rochefortia, 47
cuneata, 48
Lundellii, 47, 48
Rondeletia, 54
aprica, 54
gratissima, 54
Russelia, 51
oxyphylla, 51
verticillata, 51

Saurauia, 27
Conzattii, 28
Matudai, 27, 28
Sideroxylon Matudai, 3, 43
Smilax, 3
chiapensis, 3, 4
Kunthii, 4
lanceolata, 4
rufa, 4, 5
subpubescens, 5
Solanum, 48
belizense, 48–50
huastecanum, 49, 50
suaveolens, 50
Struthanthus capitatus, 7

Tomate cimarron, 51
Triumfetta, 27
heliocarpoides, 27
Matudai, 27

Xuchuche, 45

Zanthoxylum, 18
Matudai, 18
mollissimum, 18

CONTRIBUTIONS FROM THE UNIVERSITY OF MICHIGAN HERBARIUM

No. 1. Rusts from British Honduras, by Edwin B. Mains.
Notes on Agarics from British Honduras, by Alexander H. Smith. 28 pp., 2 pls. Price, $.25. (Issued May 23, 1939.)

No. 2. Studies in the Genus *Cortinarius* I, by Alexander H. Smith. 42 pp., 12 pls. Price, $.35. (Issued June 30, 1939.)

No. 3. Revision of the American Celastraceae I. Wimmeria, Microtropis, and Zinowiewia, by Cyrus Longworth Lundell. 46 pp., 10 pls. Price, $.40. (Issued Aug. 10, 1939.)

No. 4. Studies of Tropical American Plants—I, by Cyrus Longworth Lundell. 32 pp. Price, $.25. (Issued April 1, 1940.)

No. 5. Studies of North American Agarics—I, by Alexander H. Smith. 73 pp., 32 pls. Price, $.50. (Issued Feb. 12, 1941.)

No. 6. Studies of American Spermatophytes—I, by Cyrus Longworth Lundell. 66 pp., 5 figs. Price, $.50. (Issued Sept. 1, 1941.)

No. 7. Studies of American Spermatophytes—II, by Cyrus Longworth Lundell. 56 pp. Price, $.50.